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ABSTRACT

This book has two goals: to convey to policymakers at the Federal and state levels a clearer understanding of vocational education and what can reasonably be expected of it and to develop an approach to Federal vocational education policy that is more performance, and less process, oriented. Chapter 1 provides a general overview of vocational education today--what is offered, who is served, what is accomplished, and what it costs. Chapter 2 examines the evolution of Federal vocational education policy from its beginnings in 1917 to the most recent reauthorization of the Vocational Education Act in 1984. Chapter 3 develops the argument for adopting a new approach to Federal vocational education policy and describes the elements of "permissive planning." Chapter 4 outlines a performance-based approach to evaluating vocational education programs and discusses how the desired outcomes of vocational education should be defined and measured. Chapter 5 addresses the problem of improving the accuracy and consistency of vocational education data. Chapter 6 presents findings from site visits to local secondary and postsecondary institutions offering vocational education programs to elicit local perspectives on performance-based evaluation. Chapter 7 adds a concluding note on possible future directions for Federal policy in vocational education. (YLB)

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FROM PRESCRIPTIVE TO PERMISSIVE PLANNING: NEW DIRECTIONS FOR VOCATIONAL EDUCATION POLICY

by

E. Gareth Hoachlander
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INTRODUCTION

Few domestic programs have enjoyed federal support longer than has vocational education. Beginning with the Smith-Hughes Act of 1917, the federal government took an active interest in improving the quality of vocational education offerings by providing funds earmarked specifically for this part of the secondary and postsecondary curriculum. The Vocational Education Act of 1963 substantially increased federal support for vocational education and expanded federal concerns to issues of access as well as program quality. The recently enacted Carl Perkins Vocational Education Act of 1984 continues and, in many ways, strengthens the federal government's commitment to these twin goals of improved quality and improved program access.

Despite this long history of support for and involvement in the vocational education enterprise, federal vocational education policy has generally been held in low regard, both by those critical of vocational education and desiring to change it and by those who defend its achievements and want them expanded. To the critics, federal policy has failed to change the enterprise for the better; to the defenders, federal policy has so "overregulated" the uses of federal funds that the money cannot be used effectively. While each group offers a different prescription for changing policy, both generally agree that existing policy is in need of a thorough overhaul.

Vocational education policy thus poses an irony: while there is a broad and rather longstanding consensus that federal policy has been ineffective, Congress has continued, indeed frequently increased, funding for the program — an action that makes sense only if the policy is working, when nearly everyone agrees it is not. How this strange set of affairs occurred and what should be done about it are the major concerns of this book.

The failures of federal vocational education policy, we believe, stem from two major problems. First, those who make policy — legislators and their staff and the executive branch secretaries, under secretaries, and their staff — generally know little about vocational education. Most policy makers are products of the "academic" curriculum, and "vocational education" conjures up memories of wood shop, mechanical drawing, and vague images of some isolated wing of their high school where other students went off to work on cars, pound on typewriters, bang nails, raise pigs, or otherwise engage in activities that were not likely to become routine experiences for "the college-bound." Vocational education, even at the postsecondary level, has never been able to overcome this stereotype and convey to policy makers the complexity and diversity of the enterprise or the extent to which it touches the lives of young people.

Second, and this problem has probably been compounded by the first, the general approach taken to vocational education policy has been heavily *prescriptive*, to the point of obsession with the procedural details of what may be done with federal funds for vocational education at the expense of attention to what should be and can reasonably be accomplished. Thus, policy has sought to impose sets of rather rigid, uniform procedures on an extraordinarily diverse and highly decentralized enterprise. That the enterprise has failed to conform too often has been seen as a "failure of vocational education" rather than a failure of the policy itself.

In this book, we have two goals. The first is to convey to those who make policy — especially at the federal and state levels — a clearer understanding of vocational education and what can reasonably be expected of it. What we have to say will cut across the grain of much of the conventional wisdom about vocational education policy. For example, we will suggest that employment *per se* is not the appropriate standard by which to judge the effectiveness of vocational education programs. Rather we argue that vocational education should be held accountable for making students *employable* and suggest some strategies for evaluating employability in a specific, quantifiable fashion. This distinction between employment and employability is an important one with major implications for the directions federal policy must take if it is to become effective.

Our second goal is to develop an approach to federal vocational education policy that is more performance-oriented and less preoccupied with process. Such a policy should reward results, while permitting a wide variety of strategies for obtaining these results. This is what we mean by moving "from prescriptive to permissive planning." For permissive planning to work, however, we must be clear about what we want from vocational education, so realizing the second goal clearly depends upon achieving the first.

To these ends, we begin in Chapter One with a general overview of vocational education today — what is offered, who is served, what is accomplished, and what it costs. Chapter Two examines the evolution of federal vocational education policy from its beginnings in 1917 to the most recent reauthorization of the Vocational Education Act in 1984. Chapter Three develops our argument for adopting a new approach to federal vocational education policy and describes the elements of "permissive planning." Chapter Four then outlines a performance-based approach to evaluating vocational education programs and discusses how the desired outcomes of vocational education should be defined and measured. Chapter Five addresses the problem of improving the accuracy and consistency of vocational education data, an essential task if permissive planning and performance-based evaluation are to be adopted. Chapter Six presents the findings from a series of site visits to local secondary and postsecondary institutions offering vocational education programs to elicit local perspectives on performance-based evaluation. Finally, Chapter Seven adds a concluding note on possible future directions for federal policy in vocational education.

CHAPTER ONE

VOCATIONAL EDUCATION TODAY

Vocational education in America is an enterprise of many contrasts, reflecting some of the very best and the very worst of what can be found in the nation's schools. In New York City, for example, the Murry Bergtraum School of Business and Commerce and Aviation High School are two of the finest secondary schools in the country. Annually, they turn away thousands of applications, and of those who are enrolled, over half go on to four-year college or university. At the postsecondary level, the Fashion Institute of Technology, part of the State University of New York, lures students whose options include Harvard, Princeton, and Yale. Combining rigorous vocational preparation for entering the fashion industry with solid liberal arts education, FIT is one of the most demanding and interesting postsecondary institutions anywhere in the world.

But there is another side to vocational education, less glamorous and much less promising. In a major southern city, there are high school automotive programs that do nothing more than teach students, all minority, how to wash and wax cars. In an adult training center in a large midwestern city, we have seen row upon row of idle machine tools, obsolete the day they were installed and useless for developing the skills demanded by local industries. In a large, poverty-ridden city on the west coast, a report by the NAACP Legal Defense fund noted that 44 percent of the federal vocational education funds provided by the federal government for programs for disadvantaged youth had never been spent.[1]

Because programs range so widely in quality, it is difficult to generalize about vocational education. As the late Henry David, Director of the Vocational Education Study for the National Institute of Education, was fond of saying: "Anything you say about vocational education is true."[2] With that caveat, this chapter provides some general background on vocational education at the secondary and postsecondary levels. It describes vocational education as it exists today. What is offered as vocational education? Who is enrolled in vocational education? What has vocational education accomplished? What does it cost?

WHAT IS OFFERED?

In the United States, vocational education is carried out by some 15,700 comprehensive high schools, 1,400 area vocational schools or technical institutes, 1,100 community colleges, 650 four-year postsecondary institutions, 550 correctional facilities, and 800 other non-degree granting public schools and technical institutes. In addition, there are over 6,800 private noncollegiate postsecondary schools, commonly referred to as "proprietary schools," offering a wide variety of job training programs.[3] There is, then, no "system" of vocational education in this country; rather there is a diverse conglomeration of public and private institutions, highly decentralized and enjoying substantial autonomy in governance, finance, and content of programs.

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[1] NAACP Legal Defense and Educational Fund, Inc., *Vocational Education: Cause or Cure for Youth Unemployment*, Washington, D.C.: 806 15the Street, N.W., April 1981, p.16.

[2] Dr. Henry David directed a five year study of vocational education for the National Institute of Education from 1977 to 1982. One of the authors had the privilege of working with Dr. David, while serving as Director for the Project on National Vocational Education Resources, a three year study contracted for by NIE to examine the distribution of federal, state, and local funds for vocational education.

In 1980-81, the latest year for which data are available, about 16.9 million students were enrolled nationwide in nine broad occupational areas of vocational education: agriculture, distribution and marketing, health, consumer and homemaking, occupational home economics, industrial arts, office occupations, technical, and trade and industrial.[4] Within each of these nine areas, introductory programs are offered, and also a number of more advanced programs that are specific to particular occupations. Table 1 lists some of the specific program offerings within each general area.

In 1980-81, there were about 10.5 million secondary students enrolled in vocational education. Given that there were about 12.5 million secondary school students enrolled that year, it would first appear that 85 percent of all secondary students were enrolled in vocational education, a startlingly high percentage if the data are accurate. Almost half of these secondary vocational students, however, were enrolled in consumer and homemaking programs and industrial arts — programs that offer few, if any, job specific skills. Only 2.9 million, slightly more than one-fourth of all secondary vocational students, were enrolled in 11th or 12th grade "occupationally specific programs," which purport to impart entry level job skills for a specific gainful occupation. Of the 6.3 million secondary students in grades 11 and 12, then, about 43 percent were enrolled in occupationally specific vocational education programs.[5]

At the postsecondary level, the proportion of students enrolled in occupationally specific programs was much higher. Of the 6.4 million vocational postsecondary students, almost half were enrolled in these more advanced programs. Figure 1 summarizes the distribution of enrollment in occupationally specific programs by program area.

In addition to these regular vocational education programs, three other types of programs are operated under the aegis of vocational education: work-study, cooperative education, and apprenticeship. Under work-study, vocational education students may be employed in any public or non-profit agency, with their wages paid by vocational education funds (usually federal) rather than by the employer. The employment need not be related to the student's training, and the program serves more as a form of income support than a means of integrating classroom and on-the-job experience. The program enrolled fewer than 30,000 students in 1980-81.

In contrast to work-study, cooperative vocational education programs are joint efforts between a school and an employer to provide a student with work experience directly related to training. For example, a student enrolled in commercial photography might spend half a day in school and four hours in the afternoon working as a laboratory assistant in a local film processing facility. The school and the employer negotiate a written agreement as to the nature and pace of the student's training. Cooperative education is highly regarded as an effective training method, but many vocational educators complain that it is expensive and cumbersome to

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[3] National Center for Education Statistics (NCES), *The Condition of Vocational Education*, Washington, D.C.: U.S. Government Printing Office, 1981, Table 2.1, p.8.

[4] National Center for Education Statistics, *Vocational Education Data System, 1980-81*, Table 1105, hereafter cited as VEDS.

[5] VEDS, Table 1202.

TABLE 1
TYPICAL VOCATIONAL EDUCATION PROGRAM OFFERINGS

Agriculture: Agricultural production, supplies and services, mechanics, products, horticulture, renewable natural resources, forestry, and fishing and fisheries.

Distributive Education: Advertising, apparel and accessories, automotive, finance and credit, floristry, food distribution, food services, general merchandise, hardware and building materials, home furnishings, hotel and lodging, industrial marketing, insurance, personal services, real estate, recreation and tourism, and transportation.

Health: Dental assisting, dental hygiene, dental laboratory technology, medical laboratory assisting, nursing, practical nursing, nursing assistance, rehabilitation, radiologic technology, mental health technology, inhalation therapy, medical assistant, community health aide, and medical emergency technician.

Consumer and Homemaking: Home economics.

Consumer and Homemaking (Occupational): Care and guidance of children, clothing management, food management, home furnishings and institutional and home management.

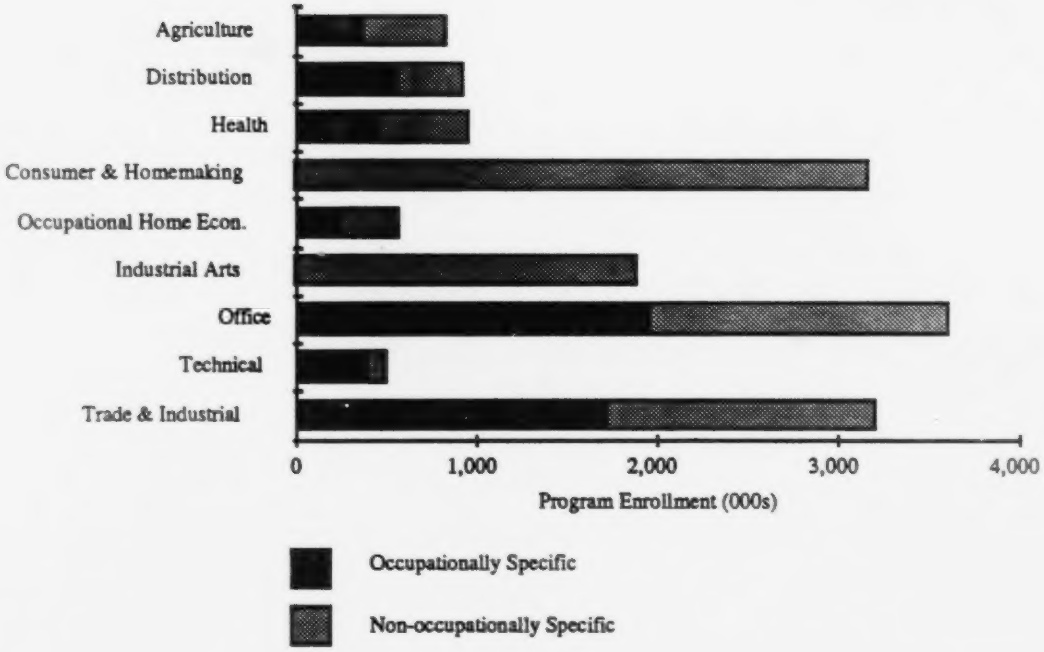
Industrial Arts: Woodshop, metalshop, and mechanical drawing.

Business and Office: Accounting and computing occupations, computer and console operators, programmers, filing and office machines, personnel and training, stenographic and secretarial, supervisory and administrative management and typing.

Technical: Architectural technology, automotive technology, civil technology, electrical technology, electronic technology, enrivonmental-control technology, industrial technology, mechanical technology, scientific data processing, commercial pilot training, fire and fire safety technology, police science technology, waste and waste water technology.

Trade and Industrial: Air conditioning, appliance repair, body and fender repair, auto mechanics, automotive specialization, aviation occupations, commercial art, commercial photography, carpentry, electricity, masonry, plumbing and pipefitting, custodial services, diesel mechanics, drafting, foremanship, graphic arts, instrument maintenance and repair, maritime occupations, machine shop, machine tools, sheet metal, welding and cutting, tool and die making, metallurgy, cosmetology, plastics, fireman training, law enforcement training, refrigeration, small engine repair, stationary energy sources, textile production and fabrication, upholstering, and woodworking.

FIGURE 1
VOCATIONAL EDUCATION ENROLLMENTS
BY PROGRAM AREA 1980-81



Source: VEDS, Tables 1105 and 1202

administer. Developing and maintaining the necessary contacts with employers is time consuming and labor intensive, because a single employer is rarely able to take more than a few students. Consequently, cooperative education programs are relatively small. Nevertheless, they are growing in popularity. From 1978-79 to 1980-81, during which time total vocational enrollments remained stable, enrollment in cooperative programs rose from 537,000 to 624,000, an increase of 16 percent in two years.[6]

Apprenticeship programs, which are one of the oldest forms of occupational training, are operated jointly by unions and employers who contract with public institutions to provide much of the training. Although students as young as sixteen are eligible, virtually all of the 181,000 students enrolled in apprenticeship programs in 1980-81 were in postsecondary institutions.[7]

There are no national standards that govern the content of vocational programs, and even within states, programs sharing the same name may have little else in common. A program in "retail merchandising" in one school may do nothing more than train cashiers on electronic cash registers, while a program under the same name in a nearby area vocational school or community college may be preparing management trainees in such subjects as advertising, pricing, window display, and employee relations.

To a large degree, the quality and rigor of a vocational education program depends on the type of institution in which it is offered. As a general rule, occupationally specific programs are offered in vocational high schools, area vocational schools, and community colleges, while introductory programs and courses in consumer and homemaking and industrial arts are offered in the comprehensive high schools. Unlike comprehensive high schools, which offer both vocational and general academic subjects, a vocational high school is a specialized school in which all or the majority of students are enrolled in vocational programs. An area vocational center provides vocational instruction to students throughout a school district or group of districts. Students attend their home school for part of the day, where they receive general academic instruction, and go to to the area center for vocational education. Not all states, however, operate vocational high schools or area centers, in which case the complete secondary vocational program is offered through the comprehensive high school.

Many believe that programs in the vocational high schools, area vocational centers, and community colleges are generally superior to those in the comprehensive high schools. One, Gilbert Sewall, writing in *Fortune Magazine*, notes:

> Even if all-purpose high schools did take job training seriously, they probably could not succeed. Few secondary vocational budgets can stand the expense of high-quality, up-to-date industrial and clerical equipment. As a result, thousands of high school shops, filled with antiquated drill presses and rusting lathes, resemble industrial museums. At a time when word-processing equipment is transforming office work, some 16-year-olds still peck at manual typewriters. Outmoded courses clutter the curriculum.[8]

The more specialized institutions can do a better job on several counts. They are usually able to offer a greater variety of vocational programs and provide much more in-depth instruction. Often they locate close to a particular industry. A program in office skills located in the heart of a financial district, for example, or an aviation school adjacent to an airport, can provide stronger links between the schools and employers. Additionally, many of these schools enjoy more flexibility over staffing. California's Regional Occupation Programs and Centers, for example, rely heavily on part-time instructors hired under short-term contracts; consequently, they are better able to respond to changing labor market demands than comprehensive high schools where faculty are tenured. Community colleges, while also having tenured faculty, make extensive use of part-time and short-term instructors.[9]

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[6] VEDS, Table 1601.

[7] Ibid.

[8] Gilbert T. Sewall, "Vocational Education that Works," *Fortune*, September 19, 1983, p.70.

Despite these advantages, vocational education in comprehensive high schools has staunch defenders. In part, this support stems from the philosophical view expounded by the old Manual Arts Movement, holding that all students (or at least, all boys — the movement was strongest from about 1880 to 1930) need exposure to a broad-based industrial education program. Thus, Charles Bennett, one of the movement's chief spokesmen, wrote:

> Every man who would intelligently use the modern conveniences of his own home, or the labor-saving devices and conveniences of business life, must know something of the materials and principles of industry;...In fact, industrial development has been so rapid and so varied in our country — it has affected every man's life to such an extent that if he is to retain sufficient mastery of his environment to make it serve his needs, he is forced to acquire considerable practical knowledge of the materials, principles and processes of industry. And if the school is to furnish it, the school must be equipped with the tools of industry.[10]

Herein lies one of the *raisons d'etre* of the comprehensive high school, and many educators still subscribe to it.

There is another reason some defend vocational education in the comprehensive high school: they fear that offering vocational education exclusively in vocational high schools or area centers segregates the vocational curriculum and makes it less accessible. Vocational education in this country has always suffered from a kind of second-class status in the education profession and in the public mind as well. In many high schools, vocational education, much like the general track, has been a dumping ground where students who are not going on to college simply mark time. Removing vocational education from the curriculum of the comprehensive high school, defenders fear, would simply exacerbate tracking and racial and social segregation.[11]

Perhaps so, but given the track record of most vocational high schools and technical institutes, there is not much evidence to support this view. On this, Gilbert Sewall writes:

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[9] Charles S. Benson and E. Gareth Hoachlander, *Descriptive Study of the Distribution of Federal, State, and Local Funds for Vocational Education: Final Report*, Washington, D.C.: National Institute of Education, 1981; Charles S. Benson, "The Question of Quality," *VocEd*, Vol. 57, No. 6, pp. 27-29.

[10] Charles A. Bennett, *The Manual Arts*, as quoted in John Gallinelli, "Vocational Education Programs at the Secondary Level: A Review of Development and Purpose" Theodore Abramson et al. (ed.), *Handbook of Vocational Education Evaluation*, Beverly Hills: Sage Publications, 1979, pp. 31-32.

[11] Rupert Evans, "Why Vocational Education Belongs in the Comprehensive High School," *VocEd*, vol. 57, No. 6, pp. 24-26.

> But if a tour of the world of vocational ed offers many disappointments, it reveals some gratifying success stories as well. Quite surprisingly, a number of old-fashioned trade schools clustered in big cities and northeastern states may turn out to be the hot alternative schools of the 1980s...Another bright promise in vocational education is a new generation of technical institutes, which take in students with varied backgrounds: high school juniors and seniors ready to tackle a tough curriculum, high school graduates who choose the institutes instead of a community college, and perhaps most importantly, people in their 20s who have had a bruising brush with low-paying jobs and come back to school to learn a trade.[12]

The debate over the appropriate setting for vocational education is, of course, a part of a larger ongoing debate about the future of the American high school. It is difficult to predict what effect this larger debate will have on secondary education, but this much can be said with certainty: unless it comes to grips with the wide range of quality in vocational offerings, and particularly the outdated and undemanding programs that dominate the comprehensive high school, it will ignore a major chunk of the secondary curriculum.

WHO IS SERVED?

In 1980-81, about 51 percent of students enrolled in vocational education were female, 76 percent white, 16 percent black, 5 percent Hispanic, and 3 percent other minority.[13] With respect to race and sex, vocational education reflects almost exactly the demography of the general public school population. When viewed as a whole, there is no evidence that minorities or women have been shunted into this part of the non-college oriented curriculum. Among vocational education programs, however, there is considerable variation in the distribution of students by race and sex. Black males, for example, are more concentrated in trade and industrial programs and industrial arts, while white males are more concentrated in agriculture and technical programs (See Figure 2). Relatively speaking, there are more white than black females in distributional programs, more black than white in occupational home economics. Women, generally, predominate in health, home economics, office, and consumer and homemaking, while men are more concentrated in agriculture, technical trade and industrial, and industrial arts. Only distribution programs reflect a balance by sex (See Figure 3). To be sure, these patterns reflect inequalities in society at large, but they do explain why the elimination of race and sex stereotyping in vocational education has been such an issue. Aside from athletics, there is probably no other part of the school curriculum where race and sex stereotyping is more evident.

Moreover, minorities and women are under represented in vocational high schools and area vocational schools. Minority students comprised about 28 percent of the enrollment in comprehensive high schools, compared to only 17 percent in the specialized schools. Similarly, 53 percent of the enrollment in comprehensive high schools was female, compared to 40 percent in the specialized schools.[14] Thus, to the extent that these schools offer superior and more advanced training than the comprehensive high schools, high quality programs appear to be less accessible to minorities and women.

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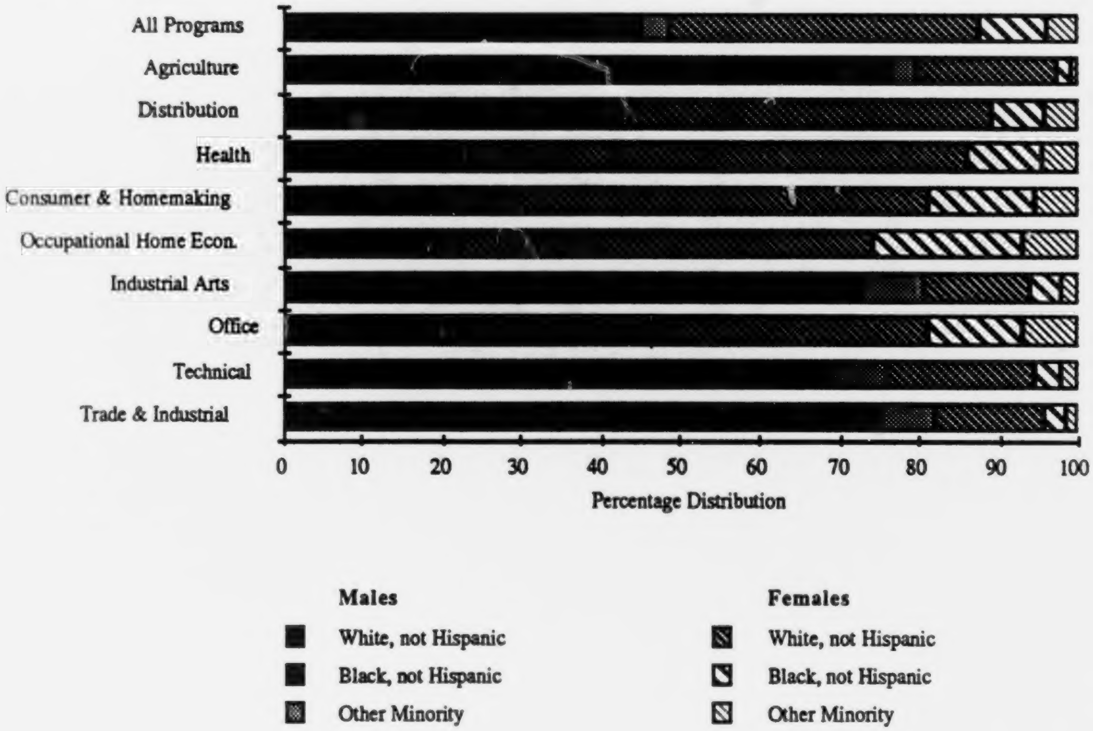
[12] Gilbert T. Sewall, "Vocational Education that Works," *Fortune*, September 19, 1983, pp. 70-71.

[13] VEDS, Table 1105.

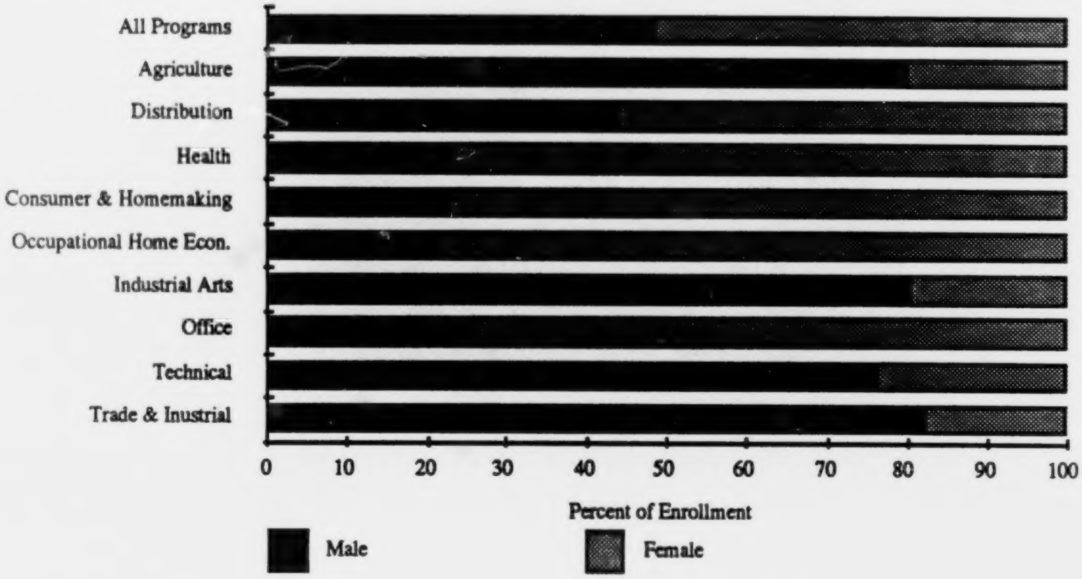
[14] National Center for Educational Statistics (NCES), *The Condition of Vocational Education*, Washington, D.C.: U.S. Government Printing Office, 1981, Tables 4.21 and 4.22, pp. 85-86.

FIGURE 2
DISTRIBUTION OF VOCATIONAL EDUCATION
STUDENTS BY RACE AND SEX
1980-81



Source: VEDS, Table 1105.

FIGURE 3
SEX DISTRIBUTION OF VOCATIONAL EDUCATION STUDENTS BY PROGRAM AREA 1980-81



Source: VEDS, Table 1105.

During the last decade, much attention has also been devoted to making vocational education more accessible to handicapped students. Data from NCES indicate that much remains to be accomplished on this goal. About 6.5 percent of the students between the ages of 14 and 25 are handicapped, but in 1978-79, the vocational program with the highest reported percentage of handicapped students was consumer and homemaking, with 4.0 percent. In office occupations and technical programs, 1.4 percent of the students were handicapped.[15]

How do vocational students compare with students in other parts of the curriculum on other characteristics? Data are spotty and available for secondary programs only. According to NCES, in 1978-1979 a slightly higher percentage of secondary students in vocational education programs lived in rural areas than did students in academic programs (31.8 percent of the total compared with 25.3 percent), although this difference seemed to be diminishing over time.[16] Compared to students in the academic track, vocational education students were also more likely to come from families whose parents had less formal education, and they typically had lower scores on standardized tests measuring verbal and mathematical competencies. In contrast to the comparison with the academic track, NCES reported few differences on these indicators between vocational education students and students enrolled in general education.[17]

These same data also suggest that differences between academic and vocational students may be diminishing. In 1972, the scores of vocational education students on tests of reading and mathematics were one and one-half to two standard deviations lower than those of academic students. By 1980, differences had dropped to about one standard deviation.[18] The decline must be interpreted cautiously. It could reflect a decline in performance of students in the academic track, but it more likely reflects the fact the more able students are enrolling in superior vocational programs as they explore alternatives to college or seek occupational skills that will help them support their college educations in an era of rising costs and diminishing financial aid.

WHAT IS ACCOMPLISHED?

No other aspect of secondary education has been more studied with fewer conclusive findings than the effectiveness of vocational education. Reviewing the research on the impact of vocational education on various student outcomes — acquisition of skills, employment, earnings, and so forth — the National Institute of Education concluded:

> It should be emphasized that the research results reported do not constitute, and should not be read as, an assessment of the effectiveness of either secondary or postsecondary vocational education programs. They are too limited — by both the data available for research and the difficulty of the research problem — to

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[15] Ibid., p. 62.

[16] Ibid., p. 53.

[17] Ibid., pp. 53-54.

[18] Ibid., Tables 4.5 and 4.6, pp. 69-70.

attribute outcomes, both economic and noneconomic, to particular education experiences.[19]

Much of the difficulty in obtaining conclusive findings about the effects of vocational education stems from widespread disagreement about what constitute appropriate outcomes by which to hold vocational education accountable. Many evaluators of vocational education tend to equate it with simple job training and adopt strict economic indicators (e.g., cost/benefit ratios or rates of return) of program performance. Most vocational educators argue that this approach takes too narrow a view. Unlike job training, which is primarily concerned with imparting an immediately marketable skill and appropriate work attitudes, vocational education, promoters of this perspective assert, takes a broader and longer range view. In addition to imparting specific job skills, it is also concerned with the acquisition of basic skills in reading, writing, and computing, as well as more generalizable vocational skills that will serve students in a variety of ways as their occupational careers advance. Because the economic value of many of these skills cannot be known until well into the future (if even then strict) influences can truly be established), adopting simple cost/benefit standards for vocational education is not appropriate.

Bearing in mind the difficulties surrounding evaluation of vocational education, what do we know about program outcomes? First, NCES reports that in FY 1979 about 46 percent of 11th and 12th grade vocational education students completed the programs in which they were enrolled, 46 percent remained in the program (many programs are of a two-year duration), 5 percent left after completing more than half the program, and 3 percent dropped out of the program before completing half of the requirements. Among those who completed programs, slightly more than half, 51.2 percent, were available for placement in the work force, 32 percent were not available for work either because they were attending school or for other reasons (enlisted in the military, for example), and the status of the remaining 17 percent was unknown. Among those available for work, 59 percent were employed in a field related to their training, 31 percent were employed in another field, and 9 percent were unemployed but seeking work.[20]

Do graduates of vocational education programs fare better in the job market than graduates from general education? The evidence on this question is mixed. The National Institute of Education cites studies that indicate that females enrolled in business and office programs experience less unemployment and enjoy higher weekly earnings than students in the general curriculum.[21] Another study indicated that, compared to students in the general curriculum, men enrolled in trade and industrial programs enjoy modest gains in income immediately after graduation from high school.[22] Still another presented evidence that enrollment in vocational programs reduced drop-out rates.[23] With the exception of these findings, however, researchers have generally been unable to establish significant differences between the employment and earning histories of students enrolled in vocational education and those enrolled in the general curriculum.

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[19] National Institute of Education, *The Vocational Education Study: The Final Report*, Washington, D.C.: U.S. Department of Education, p. VII-22, 1981.

[20] National Center for Education Statistics, *The Condition of Vocational Education*, pp. 209-234.

[21] National Institute of Education, *The Vocational Education Study: The Final Report*, pp. VII-4 to VII-9.

[22] Robert H. Meyer, *An Economic Analysis of High School Vocational Education, IV, The Labor Market Effects of Vocational Education*, Washington, D.C.: The Urban Institute, 1981.

[23] John T. Grasso and John R. Shea, *Vocational Education and Training: Impact on Youth*, Berkeley, Ca: The Carnegie Council on Policy Studies in Higher Education, 1979.

This lack of evidence on positive impacts of vocational education must be interpreted carefully. First, except for reasons of cost, it is not clear why vocational education should be expected to deliver better performance than the general curriculum. Enrollment in vocational education as opposed to general education is largely a process of self-selection, with students making individual choices about which type of program best suits their aspirations and learning styles. Vocational students might not perform as well as other students were this option not available to them. Unfortunately, this is a hypothesis that is exceedingly difficult to test.

More importantly, the absence of positive findings does not mean that they do not exist. Designing adequate research models and securing accurate data have proven very difficult. Vocational education operates in such a diversity of settings, provides such a wide range of program offerings, and reflects such wide range of quality, that controlled research is fraught with a number of unsolved theoretical and methodological problems. Furthermore, no one has yet succeeded in obtaining good student follow-up data that are free of response bias and other inaccuracies, let alone providing sufficient detail to differentiate among grade levels, delivery systems, costs of programs, and program types. Past research has mostly relied on data sets that never were designed with the evaluation of vocational education in mind. In short, although a great deal has been spent on evaluation of vocational education programs (federal law currently provides about $5 million annually for the National Center for Research in Vocational Education), the sad truth is that much of the research has been of very poor quality and that it has often failed to address issues of primary concern to setting national policy.[24]

WHAT DOES IT COST?

In 1980-81, the nation spent about $7.5 billion on vocational education, excluding expenditures by proprietary schools. About $850 million of this total, or 11.3 percent, represented federal funds, with the remainder supplied by state and local revenues. The federal figure is somewhat inflated, as only $753 million was allocated for 1980-81; states and local school districts carried over $97 million in unspent federal funds from the previous year. Thus, the federal allocation now represents about one dollar in every ten expended for vocational education.

Since 1972-73, state and local expenditures have grown about twice as fast as federal expenditures for vocational education. In 1980-81, state and local expenditures had increased 160 percent from $2.2 billion in 1972-73 to $6.7 billion in 1980-81. Federal expenditures were up 77 percent from $482 million to $853 million (See Figure 4).

Nearly two thirds of total expenditures are spent on secondary programs, where expenditures average $522 per student. Postsecondary expenditures per student average $426. Because no information is available on student contact hours, it is difficult to compare secondary and postsecondary expenditures per student. Secondary programs, however, do appear to have received a disproportionately large share of federal revenues; while 62 percent of state and local revenues for vocational education are expended on secondary programs, 80 percent of federal revenues are spent at that level (See Figure 5).

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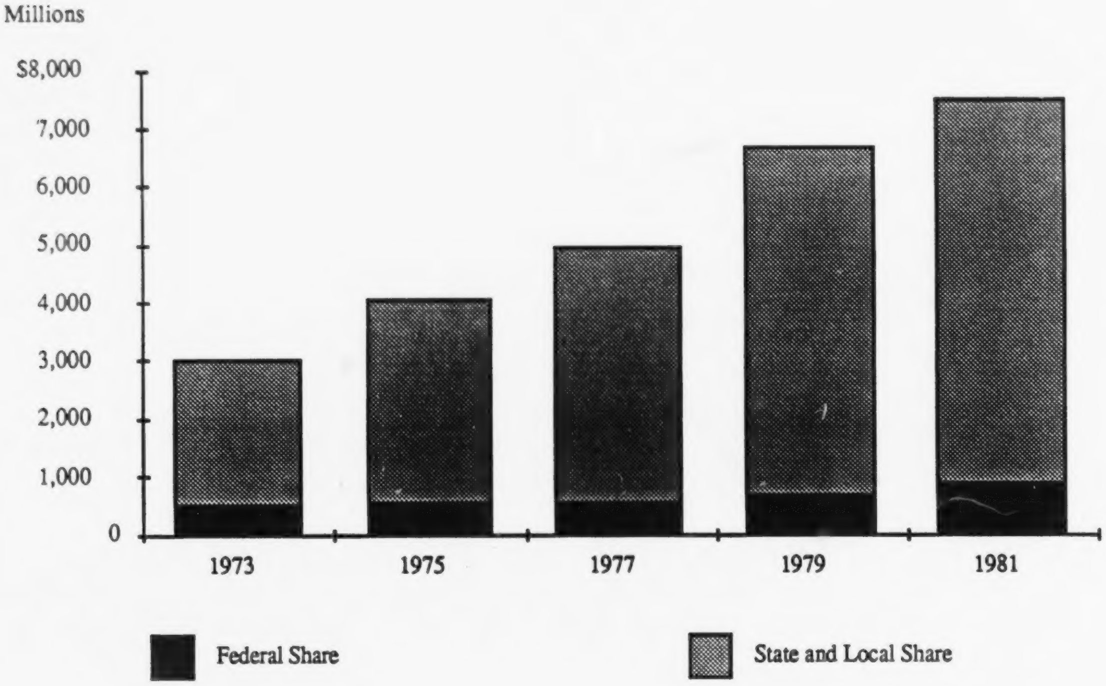
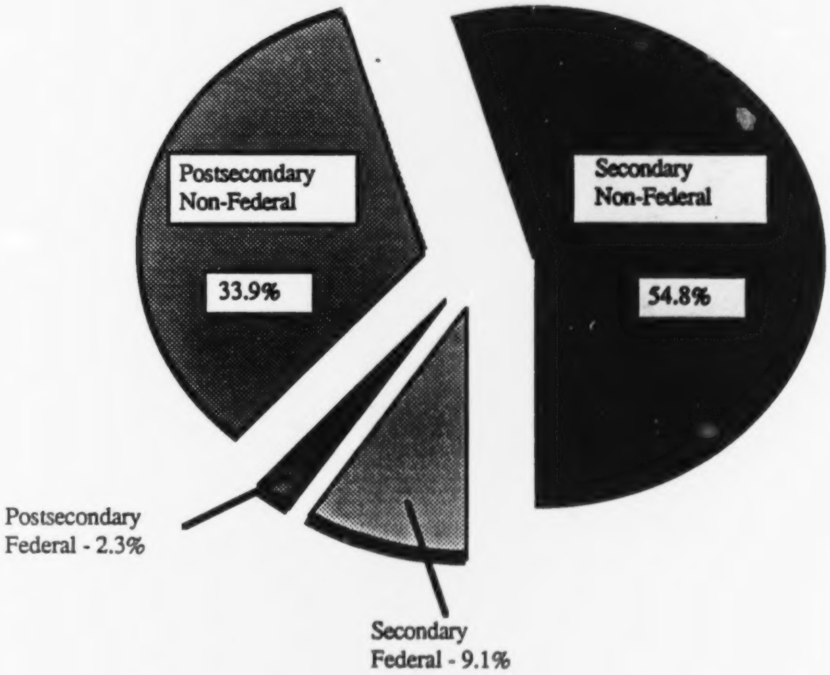
[24] Technassociates, Inc., *An Evaluation of The National Center for Research in Vocational Education, The Ohio State University, Columbus, Ohio: a Report of an Expert Panel on Written Products Delivered between January 1978 and January 1982*, a report submitted to the Planning and Evaluation Service, Office of Planning, Budget, and Evaluation, U.S. Department of Education, Washington, D.C., October 15, 1982.

FIGURE 4
VOCATIONAL EDUCATION EXPENDITURES BY SOURCE OF FUNDS: FY 1972-73 THROUGH FY 1980-81



Source: National Center for Education Statistics, *The Condition of Vocational Education*, Washington, D.C.: U.S. Government Printing Office, 1981, Table 7.1, p. 134; VEDS, Table 3102.

FIGURE 5
SECONDARY AND POSTSECONDARY EXPENDITURES FOR VOCATIONAL EDUCATION
FY 1980-81



TOTAL EXPENDITURES = $7.5 BILLION

Source: VEDS, Table 3124.

In 1980-81, the disbursement of federal funds for vocational education was authorized by the Vocational Education Act of 1963, as amended in 1968 and in 1976. The bulk of the federal funds were allocated under four major sections:

1. Section 120: Basic Grants, $617 million in FY 1983;
2. Section 130: Program Improvement and Support Services, $111 million;
3. Section 140: Special Programs for the Disadvantaged, $15 million;
4. Section 150: Consumer and Homemaking, $34 million.

Additionally, in FY 1983, federal funds provided $22 million for programs of national significance (including the National Center for Research in Vocational Education) and $12 million for state advisory councils and state planning.

The states were required to match every federal dollar with one state or local dollar, a requirement that has little meaning now that the states are outspending the federal government by a factor of nine to one. Additionally, 10 percent of the funds allocated under Sections 120 and 130 had to be set aside for programs for handicapped students, and 20 percent for disadvantaged students. Federal law also directed the states to allocate federal funds to local school districts based on four factors: 1) relative financial ability, 2) concentrations of low-income families, 3) location in an economically depressed area, and 4) proposals for offering vocational education programs that are new to the area and designed to meet new and emerging manpower needs. These requirements were controversial, observed mainly in the breach. A nationwide study for the National Institute of Education found no systematic relationship between the amount of federal vocational education funds allocated to local school districts and the factors specified by Congress for determining the distribution of funds.[25] In short, efforts to target federal funds on particular types of districts, programs, or students with special needs have not been very effective.

A SUMMING UP

Vocational education in American today is a large and costly enterprise. Programs vary greatly in quality and relevance to labor market conditions, with programs in the comprehensive high schools being particularly suspect. Although vocational education as a whole mirrors the racial and sexual distributions of students throughout the secondary and postsecondary curricula, substantial variation exists among specific program areas. Moreover, there are strong indications that minorities and women have less access to the superior programs. The effectiveness of vocational education relative to the general curriculum is an issue that generates considerable controversy, with neither side of the debate able to put forth compelling evidence. Without question, many programs have been very successful at imparting basic and job specific skills and making students employable in skilled, reasonably high-paying, entry-level jobs. Precisely why they have been effective, however, is not well understood. Just as certainly, many programs are mediocre, if not scandalously outdated and undemanding. Why they have been allowed to remain so is also not well understood.

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[25] Charles S. Benson and E. Gareth Hoachlander, *Descriptive Study of the Distribution of Federal, State, and Local Funds for Vocational Education*, a report prepared for the National Institute of Education, Washington, D.C., 1981.

There is much to be accomplished through a carefully crafted national policy on vocational education. Yet, with the exception of its response to federal stimuli for expansion, the vocational education enterprise has been largely impervious to federal legislative prescriptions for improvement and change. Understanding the history of federal vocational education policy is the subject of the next chapter.

CHAPTER TWO

THE EVOLUTION OF FEDERAL VOCATIONAL EDUCATION POLICY

Since the adoption of the Smith-Hughes Act in 1917, the federal government has sought to improve the quality of the nation's vocational education enterprise, increase access to high quality offerings, and stimulate economic development through the upgrading of occupational skills. From 1917 to 1963, federal policy provided modest support for rather narrowly defined occupational training programs in public high schools. Beginning with the Vocational Education Act of 1963, however, federal policy sought to expand vocational education. The act extended federal support for postsecondary programs and also sought to improve access to vocational education, especially among disadvantaged groups.

The Vocational Education Act of 1963 underwent two major amendments. The first, in 1968, expanded the definition of vocational education, established requirements for comprehensive planning and evaluation, and reemphasized improving the access of students with special needs. The second, in 1976, further expanded requirements for planning, evaluation, and accountability; called for the elimination of sex stereotyping in vocational education; and earmarked funding for programs for the disadvantaged, handicapped, and students with limited English-proficiency.

As federal legislation and regulations affecting vocational education became increasingly detailed, concern grew about their effectiveness. In 1981, completing a five-year comprehensive assessment of vocational education, the Vocational Education Study of the National Institute of Education concluded that the failure to focus federal policy on a few clearly stated objectives, the failure to design a variety of means to achieve a variety of ends, and the failure to appreciate fully the limits of federal legislation on changing state policies and practices had severely undermined the effectiveness of the Vocational Education Act.

The Carl D. Perkins Vocational Education Act, enacted in October 1984, seeks to redress the most serious deficiencies of past vocational education legislation. It focuses on two specific goals for federal policy: improving program access and improving program quality. Over half the funds authorized for basic grants to the States are to be used for programs serving students with special needs — the handicapped, the disadvantaged, students with limited English proficiency, single parents and homemakers, adults in need of retraining, and men and women entering occupations nontraditional for their sex. The remaining funds are to be used exclusively for program improvement, innovation, and expansion.

VOCATIONAL EDUCATION IN THE FIRST HALF OF THE CENTURY

Federal vocational education policy has its roots in the early 1900s. In 1906, a diverse set of actors representing industry, labor, and educators formed the National Society for the Promotion of Industrial Education (NSPIE). During the next eight years, this group lobbied hard for federal aid to vocational education, and in 1914, President Woodrow Wilson appointed the Commission on National Aid to Vocational Education. He charged the commission with answering six questions:

> (1) To what extent is there a need for vocational education in the United States?
>
> (2) Is there a need for national grants stimulating the States to give vocational education?

> (3) What kinds or forms of vocational education should be stimulated by national grants?
>
> (4) How far can the Federal Government aid through expert knowledge vocational education in various States?
>
> (5) To what extent should the Federal Government aid the States through national grants for vocational education?
>
> (6) Under what conditions should grants to the States for vocational education be made?[1]

Six months later the Commission reported:

> There is a great and crying need of providing vocational education of this character for every part of the United States — to conserve and develop our resources; to promote a more productive and prosperous agriculture; to prevent the waste of human labor; to supplement apprenticeship; to increase the wage-earning power of our productive workers; to meet the increasing demand for trained workmen; to offset the increased cost of living. Vocational education is therefore needed as a wise business investment for this Nation, because our national prosperity and happiness are at stake and our position in the markets of the world cannot otherwise be maintained.[2]

Federal legislation, however, was not forthcoming for another three years. Then, in 1917, with World War I straining the nation's productive capacities, President Wilson signed the Smith-Hughes Act, initiating the federal government's involvement in vocational education.

The Smith-Hughes Act provided $7.2 million annually to promote vocational education in agriculture, trade and industrial education, and home economics in public secondary schools. It established a Federal Board for Vocational Education to administer the act and directed the states to create State Boards for Vocational Education. The states were further directed to prepare state plans describing what programs were provided and to make an annual report to the Federal Board on how federal money was spent. In 1936, the George-Dean Act added an authorization for distributive education, bringing the total authorization to $14 million. In 1946, the George-Barden Act added support for two youth organizations, the Future Farmers of America and the New Farmers of America. Except for these two pieces of legislation, however, federal policy in vocational education was governed by the Smith-Hughes Act for about half a century.[3]

Compared to modern times, the aims of the Smith-Hughes Act were quite limited. It sought mainly to expand the supply of skilled labor in specific occupations such as practical nursing, the building trades, and defense-related occupations and to provide support for home economics. Federal funds were intended as a stimulus for state efforts in these areas, and Congress paid close attention to how much nonfederal money was spent on vocational education.

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[1] Quoted in John Gallinelli, "Vocational Education Programs at the Secondary Level: A Review of Development and Purpose," in Theodore Abramson et al., *Handbook of Vocational Education Evaluation*, Beverly Hills, CA.: Sage Publications, 1979, p. 29.

[2] Ibid., p. 29.

[3] Lois-Ellin Datta, "Better Luck This Time: From Federal Legislation to Practice in Evaluating Vocational Education," in Theodore Abramson, *Handbook on Vocational Education Evaluation, pp. 41-42.*

During the first three decades under Smith-Hughes, there is little evidence of dissatisfaction with federal vocational education policy. The traditional debate over whether vocational education properly belonged in the secondary school curriculum periodically waffed and waned (as it continues to do today), but until the late 1950s, there was little concern about the adequacy and effectiveness of the federal role.

During the 1950s, however, three major developments produced increasing concern about federal education policy. First, the intensity of the Cold War generated serious concern about the nation's ability to compete with Russia. Russia's launching of Sputnik in 1957 brought the issue to a head, raising a national cry for overhauling mathematical, scientific, and technical training throughout the nation's secondary and postsecondary educational institutions. Second, the civil rights movement was gaining momentum, challenging longstanding inequities in the public schools. Issues of access and remediation to overcome centuries of neglect came to the public fore. Third, technology was playing an increasingly important role in the nation's economy. Accelerating technical change was generating demands for new kinds of skilled labor. Against these waves of change, the provisions of Smith-Hughes appeared increasingly inadequate.

In 1958, Congress passed the National Defense Education Act. Title VIII of this legislation provided funds for vocational education programs training technicians in occupations necessary for national defense. Three years later, Congress enacted the Area Redevelopment Act, which funded vocational education programs for unemployed and underemployed persons living in economically depressed areas. Then in 1962, the Manpower Development and Training Act empowered local secondary and postsecondary school districts to provide vocational education for unemployed trainees referred through the Department of Labor. Total appropriations for vocational education under all federal legislation rose to $79 million.[4]

With federal policy for vocational education becoming more and more dispersed in various pieces of legislation and among different federal agencies, the stage was set for a comprehensive review and consolidation. This was accomplished with enactment of The Vocational Education Act of 1963.

THE VOCATIONAL EDUCATION ACT OF 1963 AND AMENDMENTS

The Vocational Education Act of 1963 substantially expanded the federal government's role in vocational education. The legislation had two major objectives, 1) to upgrade the quality of vocational education programs and 2) to improve opportunities for students with special needs who could not succeed in the regular vocational education programs.

The first objective reflected the widespread view that vocational education suffered from low esteem. Over the years, vocational education had become increasingly isolated within the public high school. Early proponents of vocational education had been intent on reforming the American high school, broadening the curriculum to serve better the needs and aspirations of students less academically inclined than the college-bound. However, the rather narrow focus of Smith-Hughes on specific occupational training fostered a high degree of separation within the comprehensive high school. Shops were off in isolated parts of the building, and in some cities completely separate trade schools had been established for vocational education. This geographic isolation, combined with a general lack of interest in vocational education on the part of college-bound students, tended to relegate vocational education to second class status. In many high schools, a vocational track emerged that did not enjoy the esteem of the academic track and fell well short of the high hopes of turn-of-the-century visionaries who sought a sense of equal worth between the liberal and the manual arts.

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[4] Ibid., p. 42.

The means employed to achieve the upgrading and expansion of vocational education were two-fold. First, federal appropriations were greatly increased and leveraged by state/local matching. The act authorized appropriations of $60 million for FY 1964, $118.5 million for FY 1965, $177.5 million for FY 1966, and $225 million for FY 1967 and each year thereafter. The states were required to match each federal dollar with at least one state or local dollar. Second, one-third of each state's allotment was to be used either for construction of area vocational schools or for postsecondary vocational programs.[5] Thus, it was hoped that specialization and association with postsecondary institutions would enhance the prestige and influence of vocational education programs.

To improve the access of students with special needs, Section 4 (a) of the act stipulated that federal funds under the states' basic alloment could be used to fund "vocational education for persons who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program." The legislation did not require the states to spend any minimum amount for this purpose, but did provide $30 million to implement work-study programs that provided compensation for full-time students, age 15 to 21, who would otherwise be unable to participate in vocational programs without financial support.

THE 1968 AMENDMENTS

In 1968, Congress enacted a number of important revisions to the Vocational Education Act. First, it broadened considerably the definition of vocational education, further blurring the distinction with academic studies. Henceforth, vocational education included not only training of occupational skills but also "instruction related to the occupation or occupations for which the students are training or instruction necessary for students to benefit from such training."[6] Hence, instruction in basic math and reading skills, as well as remedial instruction, was brought under the rubric of vocational education and became eligible for federal funds. In addition, the amendments explicitly included industrial arts.[7]

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[5] An area vocational school is a specialized high school that is used exclusively or principally for the provision of vocational education. Students typically attend the area vocational school for part of the day, receiving their academic instruction at their home high school.

[6] P.L. 90-576, Sect. 108 (1).

[7] Whether industrial arts constitutes vocational education has long been a controversial issue among vocational educators. Industrial arts was originally conceived by its proponents as an integral part of general education — exposing students (until recently, mostly boys) to industrial skills regardless of their occupational goals. Thus, it was not intended to prepare students for a specific occupation or trade but rather to familiarize students with the "culture" of the industrial world. Such exposure was considered as valuable for the prospective banker or physician as for the prospective carpenter or electrician. Vocational education, on the other hand, has always had as its main goal preparing students for work, and many vocational educators regard industrial arts as lacking the rigor and complexity necessary to impart useful skills that make one employable in the labor market. They resent, therefore, the eligibility of industrial arts for federal funds intended to improve vocational education.

Second, the 1968 Amendments stipulated that specific portions of the basic allotment be spent on programs for students with special needs. Twenty-five percent of each state's basic grant was to be spent for "vocational education for persons (other than handicapped persons defined in section 1086) who have academic, socioeconomic, or other handicaps that prevent them from succeeding in the regular vocational education program."[8] An additional 10 percent of the basic grant was to be reserved for programs for handicapped students.

Third, the legislation expanded the requirements for planning and reporting. It created a National Advisory Council on Vocational Education and directed each state to create a State Advisory Council to evaluate vocational education programs, services, and other activities receiving federal support.

Finally, the legislation continued federal support for work-study programs and also authorized appropriations (starting at $20 million in FY 1969 and rising to $75 million in FY 1975) for cooperative vocational education programs. These programs were intended to combine work experience with formal classroom education and to improve interaction between employers and educators.

What impact did the Vocational Education Act have during its first ten years? Good data are difficult to come by, but at least one fact is clear: vocational education programs expanded enormously. In 1964, there were about 4.6 million students enrolled in vocational education. Federal expenditures amounted to just over $55 million, and state and local governments spent about $278 million. By 1974, enrollments were almost 13.8 million, up 300 percent from a decade earlier. Federal expenditures had risen to $468 million, more than an eight-fold increase, and expenditures by state and local governments were nearly $3 billion, more than 10 times expenditures in 1964.[9] Even tempered for the effects of inflation and growth in secondary and postsecondary enrollments generally, this growth is impressive. There is no doubt that the objective of program expansion was achieved.

On other aims, however, success was less apparent. In 1974, the General Accounting Office issued a highly critical report on vocational education and the use of federal funds.[10] The report charged that states were distributing federal funds to local school districts without regard to need and without giving priority to efforts for program improvement or expansion; the bulk of federal funds was being used simply to maintain existing programs, many of poor quality. Moreover, the report found that states were not complying with the matching requirements for federal funds set aside for handicapped and disadvantaged students. Although most states far exceeded the one to one matching requirement over all, often by a factor of eight or nine to one, several of the states examined spent less than one state and local dollar for every federal dollar on programs for students with special needs. Generally, the report concluded, improving the access of students with special needs to high quality vocational education programs had not received high priority. The report also noted that sex stereotyping was pervasive throughout the vocational education curriculum.

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[8] P.L. 90-576, Section 122 (a) (4) (A).

[9] National Center for Education Statistics, *Digest of Education Statistics 1981*, Washington, D.C.: U.S. Government Printing Office, Tables 151 and 154, pp. 165-166.

[10] U.S. General Accounting Office, *What is the Role of Federal Assistance for Vocational Education?*, Report of the Controller General to Congress, Washington, D.C.: U.S. Government Printing Office, December 1974.

The GAO report was based on an in-depth analysis of vocational education in only seven states, and the report was quickly attacked as unrepresentative by the American Vocational Association and the Bureau of Occupational and Adult Education (BOAE), the federal agency charged with administering the Vocational Education Act within the then U.S. Office of Education.[11] Subsequent congressional hearings, however, as well as visits by committee staff to additional states, supported the findings of the GAO report. It figured prominently in the development of the 1976 Amendments to the Vocational Education Act.[12]

THE 1976 AMENDMENTS

By 1976, one of the major objectives of federal vocational education policy, program expansion, had been achieved. In that year enrollments in vocational education programs stood at 15.3 million students, and the states were spending more than $4.1 billion, nearly eight times federal expenditures of $534 million.[13] Consequently, the policy focus shifted mainly to issues of equity and program quality in vocational education. The 1976 Amendments sought to improve equity and program quality by relying on three strategies: 1) increased regulation of the procedures used to distribute federal funds to local school districts, 2) efforts to reduce sex stereotyping, and 3) greater regulation of planning and evaluation processes, including the establishment of a national Vocational Education Data System (VEDS) to provide comparable data on program enrollments, staff, expenditures, and outcomes. None of these strategies proved to be very effective.

Funds Distribution Procedures

With respect to funds distribution, the legislation and subsequent regulations carried forward the past provisions of setting aside portions of each state's basic allotment to support programs for handicapped students and students who were economically or academically disadvantaged, including students with limited English proficiency. Under the 1976 amendments, however, these "setaside" funds could be used to fund only the *excess costs* of such programs, that is program costs above the average expenditure per student in vocational education for students who were not handicapped or disadvantaged.

In addition to the setaside requirements, the 1976 Amendments directed the states to base the allocation of funds to LEAs on four factors: 1) location in an economically depressed area, 2) proposals for offering vocational education that are new to the area and designed to meet new and emerging manpower needs, 3) the relative financial ability of the LEA, and 4) an LEA's relative concentration of low-income families or individuals. Specifically, the legislation stated:

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[11] Under the new U.S. Department of Education, the Bureau has been reorganized and renamed. It is now the Office of Vocational and Adult Education (OVAE). It is a change in name only, however. Historically, OVAE has been more a defender and spokesperson for the vocational education community than an independent, objective overseer of federal programs.

[12] See the National Institute of Education, *The Vocational Education Study: The Final Report, pp. 1-3 to 1-4.*

[13] National Center for Education Statistics, *Digest of Education Statistics 1981, Tables 151 and 154, pp. 165-166.*

> that the State shall in considering the approval of such applications (for funds) give priority to those applicants which —
>
> (i) are located in economically depressed areas and areas with high rates of unemployment, and are unable to provide the resources necessary to meet the vocational education needs of those areas without Federal assistance, and
>
> (ii) propose programs which are new to the area to be served and which are designed to meet new and emerging manpower needs and job opportunities in the area, and, where relevant, in the State and the Nation.[14]

Additionally, the Congress specified that:

> the State shall, in determining the amount of funds available under the Act which shall be made available to those applicants approved for funding, base such distribution on economic, social, and demographic factors relating to the need for vocational education among various populations and the various areas of the State, except that —
>
> (i) the State will use as the two most important factors in determining this distribution (I) in the case of local educational agencies, the relative financial ability of such agencies to provide the resources necessary to meet the need for vocational education in the areas they service and the relative number or concentration of low-income families or individuals within such agencies, and (II) in the case of other eligible recipients, the relative financial ability of such recipients to provide the resource to initiate or maintain vocational education programs to meet the needs of their students and the relative number or concentration of students whom they serve whose education imposes higher than average costs, such as handicapped students, students from low-income families, and students from families in which English is not the dominant language.[15]

The Congress explicitly prohibited distributing funds to eligible recipients in equal amounts per student or by reimbursing a uniform percentage of expenditures for vocational education:

> The State will not allocate such funds among eligible recipients within the State on the basis of per capita enrollment or through matching of local expenditures on a uniform percentage basis.[16]

In short the general aim of the Congress with respect to the distribution of federal funds was quite clear. States were expected to focus their resources in LEAs with high concentrations of students with special needs and in LEAs with low wealth or other indications that they were economically depressed. Priority was to be given to new and innovative programs. *How* this was to be accomplished, however, was not addressed. The legislation provided no definitions for such terms as "economically depressed area," "new program," "priority," "relative financial ability," or "relative concentration." Although the law clearly stated that uniform per capita distributions of funds would not be tolerated, it gave no indication as to how close a state might come to a uniform distribution and still be in compliance. Moreover, the act did not stipulate a formula for funds allocation or indicate that states would be required to design a formula for distributing funds.

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[14] P.L. 94-482, Sec. 106(a) (5) (A).

[15] P.L. 94-482, Sec. 160 (5) (B) (i).

[16] P.L. 94-482, Sec. 160 (5) (B) (ii).

These funds distribution requirements generated much controversy and confusion. The task of interpreting the legislation and issuing regulations fell to BOAE, which lacked the technical expertise to design and evaluate funds distribution procedures. In some instances, BOAE approved distribution formulas that made no sense mathematically and statistically and in other cases disallowed perfectly sensible designs.[17] After reviewing the procedures used in each of the 50 states during 1978-79, the second year under the 1976 Amendments, the Project on National Vocational Education Resources (PONVER) reported to the National Institute of Education:

> While some states clearly demonstrated better understanding of the complexities of formula design than others, no state was using a procedure free of technical difficulties, arbitrary judgments, unexplained calculations, questionable interpretations of federal law, or inaccurate and inappropriate data.[18]

In 1979, BOAE circulated for the third time a revised draft of proposed funds distribution procedures, but like the two that preceded it, this one was fraught with errors and ambiguities. BOAE finally abandoned the attempt to issue a standard policy guide and continued to review funds distribution procedures on a state-by-state basis.

Even had BOAE been able to issue clear guidelines, the states would have encountered difficulties in complying with the funds distribution directions of the 1976 Amendments. For one thing, two of the criteria governing funds distribution were potentially contradictory. The states were directed to target funds to areas that were "economically depressed" and to areas with "new and emerging manpower needs." These areas were not likely to be one in the same. Indeed, areas with new and emerging manpower needs were more likely to be economically vigorous communities with high rates of growth and low rates of unemployment — areas the least in need of federal assistance. One criterion could well offset the other, producing the very uniform distribution that the Congress explicitly prohibited.

There were other difficulties as well. The notion of "excess costs" caused numerous problems. Most LEAs, especially the smaller ones, do not maintain accounting systems that make it possible to identify expenditures for handicapped and disadvantaged students "mainstreamed" in the traditional classroom. The regulations permitted LEAs to count the full costs of separate programs for handicapped and disadvantaged students, a requirement within the capability of most LEAs accounting procedures, but this simply encouraged LEAs to develop separate programs in direct contradiction of instructions to mainstream whenever possible:

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[17] E. Gareth Hoachlander, "Distributing Federal Categorical Aid by Formula: The Case of Vocational Education," Stanford, California: Institute for Research on Educational Finance and Governance, Stanford University, 1981.

[18] Charles S. Benson and E. Gareth Hoachlander, *Descriptive Study of the Distribution of Federal, State, and Local Funds for Vocational Education: Final Report*, Washington, D.C.: National Institute of Education, 1981, p. 130.

> The State shall use, to the maximum extent possible, the funds expended for handicapped and disadvantaged persons to enable these persons to participate in regular vocational education programs.[19]

In light of these and other problems, it is not surprising that the actual distribution of federal dollars to LEAs bore little relation to the aims of Congress. PONVER analyzed the allocation of funds to secondary and postsecondary LEAs in a sample of twelve states. As one method of testing state compliance, regression analysis was used to examine differences in the amounts of federal funds allocated to LEAs. If states were meeting federal objectives, then, other things being equal, one would have expected to find larger allocations in LEAs with low wealth, high concentrations of handicapped and disadvantaged students, high unemployment, and concentrations of low income families or individuals.

PONVER's analysis generally revealed no statistically significant relations between funding levels and the various factors Congress specified for determining allocations. In only one of the twelve states was spending consistently higher in LEAs with lower relative financial ability. A statistically significant positive relationship between funding levels and concentrations of low-income families was found in only four of the twelve states. Positive relationships between funding levels and concentrations of handicapped students existed in three of eleven states (data were unavailable for one), with concentrations of disadvantaged students in four of nine states, and with rate of unemployment in one of the twelve states.[20]

In short, because clear guidelines for distributing funds were absent, because BOAE lacked the expertise to evaluate state procedures, and because certain provisions of the 1976 Amendments were contradictory or not able to be implemented, the states enjoyed virtually unlimited discretion in the distribution of federal funds. In 1981, when the new administration took control and reorganized BOAE into the Office of Vocational and Adult Education (OVAE), the effort to design clear guidelines and procedures for funds allocation quietly ceased. For all practical purposes, allocation of the basic allotment under the Vocational Education Act operated like a block grant.

Funds Distribution and The Elimination of Sex Stereotyping

The 1976 Amendments added a major new objective to federal vocational education policy — overcoming sex discrimination and sex stereotyping. The legislation was replete with language encouraging the states to give high priority to this aim. Thus, the Act added to the opening declaration of purpose that federal funds were to be used:

> to develop and carry out such programs of vocational education within each State so as to overcome sex discrimination and sex stereotyping in vocational education programs (including programs of homemaking), and thereby furnish equal educational opportunities in vocational education to persons of both sexes.[21]

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[19] *Federal Register*, Vol 43., No. 59, Monday, March 22, 1978, p. 12357.

[20] Charles S. Benson and E. Gareth Hoachlander, *Descriptive Study of the Distribution of Federal, State, and Local Funds for Vocational Education: Final Report*, pp. 137-183.

[21] P.L. 94-482, Sec. 101 (3).

The legislation further directed the states to:

> assign such full-time personnel as may be necessary to assist the State board in fulfilling the purposes of this Act by —
>
> (A) taking such action as may be necessary to create awareness of programs and activities in vocational education that are designed to reduce sex stereotyping in all vocational education programs;
>
> (B) gathering, analyzing, and disseminating data on the status of men and women, students and employees in the vocational education programs of that State;
>
> (C) developing and supporting actions to correct any problems brought to the attention of such personnel through activities carried out under clause (B) of this sentence;
>
> (D) reviewing the distribution of grants by the State board to assure that the interests and needs of women are addressed in the projects assisted under this Act;
>
> (E) reviewing all vocational education programs in the State for sex bias;
>
> (F) monitoring the implementation of laws prohibiting sex discrimination in all hiring, firing, and promotion procedures with the State relating to vocational education;
>
> (G) reviewing and submitting recommendations with respect to the overcoming of sex stereotyping and sex bias in vocational education programs for the annual program plan and report;
>
> (H) assisting local educational agencies and other interested parties in the State in improving vocational education opportunities for women; and
>
> (I) making readily available to the State board, the State and National Advisory Councils on Vocational Education, the State Commission on the Status of Women, the Commissioner, and the general public, information developed pursuant to this subsection.[22]

Each state was directed to reserve $50,000 annually from its federal allotment to carry out these activities.

Despite the amount of language devoted to the goals of eliminating sex stereotyping and improving programs for handicapped and disadvantaged students, the 1976 Amendments offered little in the way of specific directions as to how this was to be accomplished. It is therefore not surprising that activities to promote sex equity were uneven. As part of its survey of 1,200 LEAs in a representative sample of ten states, PONVER asked LEAs about their efforts to promote sex equity in vocational education. Districts were asked if they had, during the current academic year (1979-80), spent any federal, state, or local funds on special activities to promote sex equity in vocational education. Examples of special activities included assemblies, speakers, films, and workshops. Among the secondary LEAs, 22 percent reported that they had expended funds for sex equity. At the postsecondary level, 40 percent reported doing so.[23]

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[22] P.L. 94-482, Sec. 104 (b) (1).

The proportion of LEAs undertaking activities to eliminate sex stereotyping varied according to size of community. In large cities, a majority of secondary school districts reported carrying out such activities; almost 60 percent of districts in these urban areas said they had spent funds to promote sex equity. In rural areas, on the other hand, only 10 percent of the districts reported spending money to reduce sex stereotyping. The proportion of suburban districts reporting expenditures for sex equity fell between these two extremes. Thus, 17 percent of LEAs in small suburban communities reported expenditures for sex equity, and 33 percent of LEAs in mid-size cities (population between 50,000 and 100,000) reported doing so.

These results need to be interpreted carefully. On the one hand, three quarters of the districts responding to the survey reported no activities to promote sex equity. Moreover, among those reporting some activities, in half of these expenditures amounted to less than $500 during the academic year. These figures indicate a rather low level of activity and suggest that federal policy had not had much impact. On the other hand, sex equity activities were much more prevalent in the larger districts, indicating that while only 25 percent of the LEAs were exposed to sex equity issues, a much larger percentage of students were affected, perhaps as many as 40 to 50 percent. When one considers that the survey was conducted only two years after the implementation of the 1976 Amendments, this level of activity is significant. But has the sex composition of vocational education programs been affected? There is some evidence to suggest that it has.

In 1978-79, 52 percent of the students enrolled in health, consumer and homemaking, and office occupations were female. In contrast, more than 75 percent of the students enrolled in agriculture, industrial arts, technical, and trade and industrial programs were male. Of the program areas dominated by females, the proportion of males enrolled increased the most in consumer and homemaking, up from 7.9 percent in 1972 to 22.6 percent in 1981. Of the program areas dominated by males, the greatest gain for females occurred in agriculture, up from 5.3 percent in 1972 to 20.2 percent in 1981. Change in other areas, however, such as trade and industrial programs and office occupations, has been much less.[24] The fact that progress has been made suggests that one should not underestimate the value of rhetoric. Stating explicitly that one of the major objectives of federal vocational education policy is the elimination of sex discrimination in vocational programs has provided activists promoting gender equity with an important tool.

Efforts to improve programs for handicapped and disadvantaged students appear to have met with less success. While states and local school districts have generally complied with the setaside provisions and matching requirements of the 1976 Amendments, there was nothing to prevent them from spending these funds on low quality programs. Moreover, the regulations' peculiar definitions of "excess costs," which are the only expenses that may be reimbursed with federal setaside funds, created strong incentives for districts to segregate handicapped and disadvantaged students in separate programs, in direct contradiction of clearly stated goals to "mainstream" as many students as possible.[25]

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[23] Charles S. Benson and E. Gareth Hoachlander, *Descriptive Study of the Distribution of Federal, State, and Local Funds of Vocational Education: Final Report, pp. 223-234.*

[24] National Center for Education Statistics, *The Condition of Vocational Education, Washington, D.C.: U.S. Government Printing Office, p. 57.*

Planning, Evaluation, and Reporting

Although the amendments were vague on funds allocation, sex equity, and program improvements for students with special needs, they were much more explicit about requirements for planning and evaluation. To strengthen procedures for planning, evaluation, and reporting, the 1976 Amendments required three major documents from the state — a five year plan, an annual plan updating the five year plan, and an annual accountability report describing how funds had been used and what had been achieved. The planning procedures were to give greater emphasis to improving the match between labor market needs and the kinds of vocational education programs provided. The GAO report had been very critical of the relevance of many vocational education programs, finding that most of the enrollment was "concentrated in programs with only a peripheral relationship to labor market needs."[26] In most states, however, these requirements had little effect other than to generate mountains of paper that parrotted back federal regulations and legislative language.

Better planning would require better data, and the legislation addressed this need in two ways. First, it directed each state to establish a State Occupational Information Coordinating Committee (SOICC) and called for a national committee to be established as well. These committees were charged with improving the quality of information on labor market needs. Second, the act established the national Vocational Education Data System (VEDS) to collect comparable data from each state on vocational education enrollments, staff, expenditures, and student follow-up. Theoretically, data from VEDS, when matched with better data on labor market needs developed by the SOICCs, would greatly improve planning and the fit between labor market demand and supply.

The implementation of VEDS touched off a storm of protest at the state and local level. The system's appetite for information was enormous, and because it sought comparability among states, it imposed uniform definitions of program types, student characteristics, and financial accounts that frequently were at odds with traditional state and local practices. The National Center for Education Statistics (NCES), the federal agency charged with implementing VEDS, endured several years of angry letters, disgruntled state directors, and frustrating regional workshops to put VEDS securely in place. Along the way it made several concessions to placate its critics, but it was ultimately suspended in 1983-84.

Among vocational educators, VEDS has been the butt of many jokes, much derision, and some outright refusals to comply with its requests. Without a doubt, VEDS imposed a substantial burden on states and local school districts, and its implementation has been slow and painful. These difficulties, however, need to be put in perspective.The importance of VEDS can be understood if one recognizes how poor was the information that existed prior to VEDs.

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[25] Charles S. Benson and E. Gareth Hoachlander, *Descriptive Study of the Distribution of Federal, State, and Local Funds of Vocational Education: Final Report, pp. 217-223.*

[26] U.S. Congress, House, Committee on Education and Labor, *The Vocational Education and National Institute of Education Amendments of 1976: Report to Accompany H.R. 12835, House Report No. 94-1085, 94th Congress, 2nd Session, 1976, p. 16.*

Prior to the 1976 Amendments, the vocational education data submitted to Washington by the states were regarded as extremely inaccurate; yet this information formed the basis for charting federal policy. The problem is reminiscent of a statement attributed to Sir Josiah Stamp, who lived from 1880 to 1941 and served as Her Majesty's Collector of Inland Revenue:

> The Government are extremely fond of amassing great quantities of statistics. These are raised to the Nth degree, the cube roots are extracted, and the results are arranged into elaborate and impressive displays. What must be kept ever in mind, however, is that in every case, the figures are first put down by a village watchman, and he puts down anything he damn well pleases.[27]

Such was the problem with vocational education data. Counts of students enrolled in vocational education fluctuated wildly from year to year, with one state even reporting more students enrolled in secondary vocational programs than there were students enrolled in all of secondary education in the state. Information on finances was inadequate, and the data on the employment status of those who had been enrolled in vocational education was completely unreliable.

As one of its first tasks for NIE, PONVER undertook an assessment of three national data bases that existed prior to VEDS — information collected by the Bureau of Occupational and Adult Education (BOAE), information produced by Project Baseline (a federally funded, five-year project to improve vocational education data), information collected by System 437 under the administration of the Office of Planning, Budgeting, and Evaluation in the U.S. Office of Education. PONVER submitted its report to NIE in October 1980:

> From reading the hearings and listening to the comments of those familiar with vocational education data, we were expected to find problems. Despite these warnings, we prepared neither for the magnitude nor the pervasiveness of the difficulties of using these data. Our analysis led us to four general conclusions:
>
> (1) There is no agreement among the three data sets about either the amount of money expended on vocational education or the number of students served. For individual states, it is common to find one system reporting a figure as little as one-half or as much as twice that reported by another system for the same variable.
>
> (2) None of the three data sets is internally consistent over time. Annual fluctuations of plus or minus 30 percent in the same variables are typical and in almost no instance credible...
>
> (3) The two data systems administered by the U.S. Office of Education suffer from serious design flaws that make both very difficult to use for analytic purposes...
>
> (4) ... there is presently no national data system that permits analysis of how states distribute federal funds to eligible recipients. Consequently, with

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[27] Attributed to Sir Josiah Stamp of Her Majesty's Inland Revenue, 1880-1941.

> existing national data, it is not possible to determine how successful Congressional objectives have been in influencing the distribution of funds.[28]

It would be convenient to dismiss these problems as merely the result of so much variation among states that a uniform national reporting system is impossible to attain. Each state could be capable of managing its own vocational education system but unable to meet uniform national requirements for information. However, the facts are that prior to VEDs, few states had any sophisticated management information systems of their own. Most states were not simply providing poor information to Washington, while relying internally on more reliable and useful information of another sort. Rather most states suffered from a paucity of accurate data, and many a state director would admit privately, if not publicly, that the introduction of VEDS provided the excuse to demand more accurate and comprehensive information for setting state policy. Nevertheless, lobbying to eliminate or curtail VEDS was intense.

VEDS Outcomes

Unfortunately, better data were not forthcoming. VEDS encountered major difficulties in virtually all aspects of its data collection efforts, which began in 1978-79 and continued through the 1982-83 school year. At the outset, it was expected that data quality problems would gradually disappear, as respondents became more and more familiar with the system. These hopes, however, were not realized. In 1983, cross-form and cross-year checks of VEDS data collected during the first three years were performed and revealed serious inconsistencies in the data and unrealistic annual fluctuations. Three basic problems plagued the system:

1. *Lack of comparability among states.* Data were not comparable from state to state and, therefore, yielded misleading national totals when aggregated.

2. *Year-to-year variablility.* The data exhibited excessive variation over time, which was difficult to explain. Consequently, the VEDS data could not be used to describe trends over time accurately.

3. *Within state discrepancies.* When VEDS data from some states were compared to state data from other sources, many large discrepancies were observed; these could not be adequately explained.

Following these findings by NCES, the Office of Management and Budget (OMB), in December 1983, withdrew approval for collection VEDS data for 1983-84 and 1984-85, because "VEDS has substantial and continuing problems collecting data which are accurate and meaningful." OMB directed that the "collection should not be undertaken at this junction and should remain suspended until the Department [of Education] has fully implemented the plan for improving VEDS." As of July 1985, a new data collection plan had not yet been finalized.[29]

In sum, the 1976 Amendments could count few successes, and as time for reauthorization drew near, there was significant pressure for complete overhaul of the Vocational Education Act.

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[28] Charles S. Benson, E. Gareth Hoachlander, and Bronia Lena Johnson, *An Assessment of the Reliability and Consistency in Reporting of Vocational Education Data available from National Data Information Systems*, A Report Prepared for the National Institute of Education Resources, University of California at Berkeley, October 1980, pp. 2-3.

[29] Chapter 5 discusses problems of vocational education data collection in detail.

In 1981, completing a five year comprehensive assessment of vocational education, the Vocational Education Study of the National Institute of Education reached three general conclusions about federal vocational education policy:

- the Vocational Education Act of 1963, as amended, attempted to accomplish too much with too few resources;
- there were sometimes mismatches between the ends of Federal policy and the means relied upon to realize them; and
- realizing the ends of Federal policy depended heavily upon State and local policies, practices, and resources.[30]

In short, the study described a history of ambiguous and often contradictory regulation that had increasingly alienated vocational administrators and educators and generally failed to realize the intent of Congress.

THE CARL D. PERKINS VOCATIONAL EDUCATION ACT OF 1984

Reauthorization of the Vocational Education Act, which was originally scheduled for 1982, was delayed two years as the various factions fought over the future of national policy. The administration halfheartedly pushed for a block grant that would have combined vocational and adult education at reduced funding levels, but the proposal received little support in Congress, even among Republicans. The American Vocational Association lobbied hard for a bill of its own design that was introduced in the House (H.R. 4164) in spring of 1983. Entitled the "Vocational Technical Education Act," the bill was long on rhetoric about technology, economic development, and industry-education partnerships, but it was very short on how its goals would be achieved. In fact, the bill was a block grant differing from the administration's mainly in price tag—about twice what the administration had in mind. A version of H.R. 4164 actually passed the House, but not before it was radically amended to restore the funding setasides and other features of current legislation.

H.R. 4164 met a cool reception in the Senate, where both Republicans and Democrats were of a mind to do something new and different. S. 2341 paid close attention to the major findings of the NIE Study, and sought to clarify and simplify federal objectives for vocational education. The Senate bill emphasized two major aims of federal policy: improved access and improved program quality. Additionally, it stressed greater private sector involvement in vocational education, requiring that a majority of the members of state advisory councils be from business and industry and establishing "industry education partnership training program in high technology occupations."

The House and Senate bills were so different that most observers held little hope that a compromise could be struck before the October 1984 recess. However, the death of Congressman Carl Perkins, long a champion of federal involvement in vocational education, produced strong pressures to reach agreement. Members in both houses saw new legislation as offering the opportunity to create a tribute to Perkins. Moreover, with debates over the federal deficit likely to dominate the 1985 session of Congress, many members and staff believed that if a bill could not be voted out in 1984, reauthorization would be delayed until 1986 or later. Consequently, after a frenzied, last-minute set of negotiations, the Conference Committee reached agreement on October 2, 1984. The Conference Report explained how differences had been resolved on 258 points of conflict.

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[30] National Institute of Education, *The Vocational Education Study: The Final Report*, pp. xi-xii.

Although the new act bears Carl Perkins' name, the strong influence of the Senate is clearly apparent. The legislation has two main purposes: 1) assisting the states to expand, improve, modernize and develop quality vocational education programs, and 2) assuring that individuals who are inadequately served under vocational education programs are assured access to quality vocational education programs. The states are instructed to use 43 percent of their basic grants for purposes of program improvement, innovation, and expansion. The remaining 57 percent of the funds are to be used to fund programs for students with special needs:

- 10 percent for handicapped individuals,
- 22 percent for disadvantaged individuals, including those with limited English proficiency,
- 12 percent for adults in need of training or retraining,
- 8.5 percent for homemakers and single parents,
- 3.5 percent for participants in programs designed to eliminate sex stereotyping, and
- 1 percent for criminal offenders in correctional institutions.

In addition, the law provides funds to assist states in supporting a variety of special programs including community-based organizations, consumer and homemaking education, adult training and retraining, career guidance and counseling, and industry-education partnerships in high technology occupations. It further stipulates that a majority of the members comprising the State Council shall be from the private sector.

In several respects, the Carl Perkins Vocational Education Act is an improvement over past law. It concentrates federal funds on two major objectives that are clearly stated. It simplifies requirements for state planning and reporting, eliminating much of the repetitious parroting of assurances of compliance and reducing considerably the burden of collecting and reporting data on vocational education. Contradictory criteria for distributing funds within states have also been eliminated. The emphasis on increased private sector involvement may help to keep programs abreast of new developments in the world of work.

However, if the new law is stronger on *ends*, it is notably weaker on *means*. By maintaining the "setaside" approach to addressing issues of access, the law provides funds for serving students with special needs but contains no mechanism for ensuring that services and programs are of high quality. Furthermore, it perpetuates the unworkable notion of "excess costs" for determining federal support for handicapped students. Moreover, many of the definitions of students with special needs are so broad that, should they want to, states will be able to include large numbers of students under the special needs umbrella, distributing the federal money widely but thinly.

Although the legislation stresses that it is the intent of Congress to concentrate federal funds on program improvement, innovation, or expansion rather than on maintenance of existing programs, what constitutes improvement, innovation, or expansion is not clearly defined. As the states are given complete discretion over how these funds will be allocated, there is a high risk that these funds will simply constitute general assistance, much as they did under the old law.

Finally, many local school districts with the greatest needs may be worse off under the new legislation, despite its greater emphasis on improving access. Under the old law, the concentration of handicapped and disadvantaged individuals affected the intrastate allocation of the *total* basic grant. Under the new law, the concentration of handicapped and disadvantaged students affects only the allocation of the 10 and 22 percent setasides. States are free to allocate the program improvement portion of the basic grant any way they choose. Consequently, while local districts with high concentrations of handicapped and disadvantaged students should wind up with no less money for programs for students with special needs, they may enjoy significantly less VEA funding overall. At the very least, the vagueness with which program improvement, innovation, and expansion have been defined will give states sufficient "wiggle room" to enable them to distribute VEA funds in much the same fashion as they always have.

In summary, although the aims of federal policy for vocational education have been more clearly articulated in the new legislation, these objectives are not any more likely to be realized than the objectives of previous law. In the next chapter we turn to possible strategies for making federal policy more effective and for spending federal resources more efficiently.

CHAPTER THREE

THE NEED FOR A NEW APPROACH TO FEDERAL POLICY

At the risk of oversimplifying, the major problems with federal vocational education policy to date come down to this:

- the federal government has sought to do too much with too little, spreading its resources so thinly that none of the policy goals it sets is fully and effectively realized;

- the federal government has sought to realize its aims by prescribing for recipients of funds procedures to be followed rather than outcomes to be achieved.

In FY 1984, federal expenditures of $735 million, spread over all 17 million students then enrolled in vocational education, amounted to less than $50 per student, or about one-tenth the amount that state and local governments spent for vocational education. As such a minor contributor to the vocational education enterprise, the federal government could have accomplished its many objectives only if its goals were perfectly congruent with those of the states. But if such congruence existed, there would be no need for federal involvement at all. However, in the absence of congruence, the federal government lacks any objective measures of whether its aims are being achieved. What, then, should be done?

One option for federal policy is withdrawal from vocational education. The vocational education enterprise has grown enormously during the past twenty years and is now supported overwhelmingly by state and local dollars. The quality of program offerings is uneven, but this is true of public education generally and may simply be the price of a highly decentralized education system that cannot be at once both uniformly high quality and responsive to local needs and desires. Similarly, while problems of access remain, a highly visible federal presence may no longer be required to break down barriers. Members of groups that historically have been underserved by vocational education are more aware than ever of their rights and have become increasingly effective at exercising them. In this light, federal dollars now spent for vocational education might be better invested elsewhere, especially if the money is simply to be left on the proverbial stump.

A federal withdrawal from vocational education, however, is not likely. For one thing, the very success of federal policy in stimulating program growth has spawned a powerful constituency of vocational educators and administrators who now lobby hard and effectively for federal assistance.[1] While federal assistance may constitute a small portion of total spending for vocational education, the support has great symbolic importance to a group of educators still very sensitive about their status in the larger education community. They are likely to continue to press for federal assistance, and Congress is likely to respond favorably. If these political considerations make withdrawal unlikely, how could federal vocational education policy be recast to improve its effectiveness?

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[1] There is no better evidence of the power and effectiveness of this lobby than the Carl Perkins Vocational Education Act itself. At a time when education programs and other domestic spending were under strong attack, federal vocational education spending emerged virtually unscathed.

FROM PRESCRIPTIVE TO PERMISSIVE PLANNING: THE ELEMENTS OF A NEW APPROACH

For federal vocational education policy to overcome the major deficiencies that have plagued it in the past, the following conditions need to be met:

- federal resources must to be concentrated on a few, clearly formulated objectives;
- legislation and regulations must become less concerned with prescribing processes and instead specify expected results and acceptable means for measuring progress toward these aims;
- the distribution of federal funds must relate directly to performance on carefully specified outcome criteria.

This approach to formulating federal policy has been called "permissive planning."[2] The distinguishing feature of permissive planning is its emphasis on outcomes rather than inputs or processes as criteria for evaluating program effectiveness. In determining what programs to expand, contract, eliminate, or initiate, the primary test is an appraisal of the programs' payoffs for those who participate. At the same time, permissive planning tolerates great diversity in the organization, funding, and delivery of services. What counts is that the efficiency of the choices be demonstrated in terms of clearly defined measures of program outcomes.

For permissive planning to work effectively, the allocation of federal funds for vocational education would need to be directly related to measures of program performance. For example, local providers of vocational education could receive more federal money the greater their enrollments in advanced programs meeting specified performance standards and the greater their enrollments in these programs of students who have traditionally been underserved — the disadvantaged, the handicapped, students with limited English proficiency, displaced homemakers, single heads of households, and so forth. This practice would spread federal vocational education dollars over a smaller group of students than is now receiving federal support, increasing the incentive to offer high quality programs and to increase enrollments of underserved students.

With funding tied to program performance, the federal government would be indifferent to how much money states and LEAs spent on handicapped and disadvantaged students. Nor would it be concerned with how programs were offered or what support services were provided. Rather, it would require evidence on the number of handicapped and disadvantaged students participating in vocational education programs, the number completing programs for which there is a high probability of employment and good wages, the number actually employed or pursuing further education or training, the number whose scores rose on tests of basic or occupational skills, the change in performance of students with special needs relative to that of other students, and so forth. Evidence of accomplishment on such criteria would be the condition for funding, not the ability to demonstrate that dollars were allocated in a particular fashion.

Such an approach to allocating funds would be a radical departure from the current reliance on setasides, which require LEAs to use specific percentages of their funds for certain purposes but do not require any particular results. Consider, for example, the requirement that specific portions of funds allocated under the basic grant be expended on programs for handicapped and disadvantaged students. There is no requirement that states or LEAs demonstrate that handicapped and disadvantaged students actually benefit from the expenditure of these funds. Even if the funds were used to shunt such students off into inferior programs, such practices would technically be in compliance with federal law. A performance-based system would prevent this sort of mindless compliance.

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[2] Melvin M. Webber, "Planning in an Environment of Change." *The Town Planning Review*, Vol. 39, No. 4, Jan. 1969.

If effectively designed and implemented, emphasizing outputs would free local vocational administrators and educators to do what they do best — to carry out a number of different approaches, carefully tailored to local circumstances and the needs of individual students. Under permissive planning, there would be no one best way, no minimum expenditure, no essential activity for realizing such federal objectives as program improvement or greater access. There would be uniform, clearly stated standards for what constitutes program success, but there would be any number of ways of realizing such aims.

PROSPECTS FOR PERMISSIVE PLANNING

Permissive planning is not a new idea. It is, in fact, the classical planning paradigm, which requires setting goals and priorities, understanding the influence of various phenomena on desired outcomes, predicting the consequences of alternative courses of action, weighing costs and benefits of the alternatives, and continuously monitoring outcomes to inform the resetting of goals and priorities. It does not free policy of regulation, evaluation, or reporting; rather it redirects such activities toward assessing accomplishments rather than examining compliance with practices or procedures related to service delivery. To what extent could permissive planning be applied under existing law?

The Carl D. Perkins Vocational Education Act of 1984 takes an important first step toward practicing permissive planning; it clearly focuses federal policy on two objectives:

- providing general support for the improvement and expansion of high quality vocational education programs;
- providing additional support for improving the access of underserved populations to these same advanced programs.

While these concerns are not new, and indeed have dominated federal vocational education policy for the last twenty years, the 1984 Act states them more clearly and limits federal aims to these two major goals. Unlike previous legislation, the 1984 Act does not attempt to deal with unemployment problems, economic development, equalization of resources among geographic regions, or a variety of other policy concerns included in past vocational education legislation.

Although the legislation limits and articulates federal objectives clearly, it suffers from two major deficiencies that prohibit adopting a permissive planning approach. First, its two primary criteria for evaluating program performance — job placement and employer satisfaction — are inappropriate and unworkable in the absence of other measures. Second, funding is in no way dependent on performance. Rather, the legislation perpetuates the setaside approach of the previous act. Both of these features make it unlikely that the new legislation will have a demonstrably better impact on program access and program improvement than previous policy.

The Need for Better Performance Measures

Federal vocational education policy has not ignored the need for performance criteria. The 1976 Amendments to the Vocational Education Act established two primary outcome-oriented criteria for program evaluation: 1) the extent to which those taking vocational education found employment in occupations related to their training, and 2) the extent to which their employers considered them to be well trained and prepared for employment. Neither of these, singly or together, has provided a workable standard by which to hold program providers accountable.

Vocational educators have objected to job placement and employer satisfaction as standards on several grounds. First, they have maintained that the emphasis on placement rates fails to distinguish vocational education from more narrow job training. Adopting placement as the primary criterion ignores the multiple goals of vocational education. In addition to imparting specific job skills, vocational education is also concerned with the acquisition of basic skills in reading, writing, and mathematics, and with general vocational skills that will serve students in a variety of ways as their careers advance.

Second, vocational educators have also argued that the employment of vocational education students is determined by a large number of economic and personal factors beyond the control of the vocational education system. "Hold us accountable for *employability*, but not for *employment* has been a frequent refrain.[3]

Third, many vocational educators have expressed concern that the single-minded focus on placement encourages programs to admit only those students who are likely to be easy to place. Consequently, important objectives — such as serving the needs of students with special learning disabilities and opening certain occupations to women and minorities — are ignored.

In addition to these conceptual problems, good data on placement and employer satisfaction have proven very expensive to obtain and unreliable even when serious efforts have been made to collect this information. VEDS required states to follow up students enrolled in occupationally specific programs six months after they had completed or left a program. Information on employment status was sought from students, and for those who were employed, their employers were surveyed to determine how well students had been prepared for work. Response rates were so low that the data were useless. In California, for example, at the postsecondary level, the status of 75 percent of those students surveyed was unknown in the 1980-81 follow-up. Most states and LEAs simply lacked the financial resources and often the technical skill to perform effective follow-up.

Even had VEDS been able to achieve acceptable response rates and quality of data, the information would have had limited utility for evaluating the effectiveness of different vocational education programs. Limiting follow-up to the first six months following program completion does not allow enough time to capture fully the effects of vocational education. Moreover, VEDS collected no information on students who had taken no vocational education, so that comparisons of the effects of different curricula could not be evaluated. In short, obtaining good information on job placement and employer satisfaction is difficult and expensive to do properly. It can be done, but not with the annual, universal census approach adopted by VEDS.[4]

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[3] Gerry Hendrickson, *Evaluating Vocational Education: The Federal Stimulus,* Vocational Education Study Publication No. 5, Washington, D.C.: National Institute of Education, March 1981, p. 7.

[4] The federal government has sponsored a number of longitudinal studies of small, national samples of secondary students, and these have produced very good follow-up information on students enrolled in vocational education. These studies, however, suffer from two shortcomings. They lack geographic specificity, making comparisons among LEAS and among states impossible, and the degree of program specificity is limited to about 20 of the largest vocational education programs. See Chapter 5 for a detailed discussion of vocational education data.

The Need for a More Rational Approach to Allocating Federal Funds

To allocate federal vocational education funds to LEAs, the 1976 Amendments directed the states to take into account four major factors:

- relative financial ability;
- relative concentration of low-income families or individuals;
- location in an economically depressed area;
- intention to provide new programs.

Although the legislation did not specify how states were to use these factors to allocate funds, subsequent regulations required the states to develop funds distribution formulas that not only included these factors but also complied with the setaside provisions for handicapped and disadvantaged students. As was noted in the previous chapter, the formula requirement produced chaos and confusion that never was resolved, and Congress understandably abandoned the formula requirement when it came time for reauthorization.

Unfortunately, lacking any workable outcome measures, policy makers were forced to rely even more heavily on setasides to allocate federal funds. The new law divides the basic state grant in to two large pots; 57 percent of the money is to be used to improve vocational education opportunities for students who historically have been underserved, and 43 percent is to be used for program improvement, innovation, and expansion. The 57 percent of the funds reserved for improving program access consists of 6 setasides:

- 10 percent for handicapped individuals;
- 22 percent for disadvantaged individuals;
- 12 percent for adults in need of training or retraining;
- 8.5 percent for single parents and homemakers;
- 3.5 percent individuals participating in programs designed to eliminate sex stereotyping;
- 1 percent for criminal offenders in correctional institutions.

The states are directed to allocate the handicapped setaside to eligible recipients (LEAs) based on the relative number of economically disadvantaged individuals enrolled in each eligible recipient and on the basis of the relative number of handicapped students served in vocational education programs by each eligible recipient. The disadvantaged setaside is to be allocated on the basis of the relative number of economically disadvantaged individuals enrolled in each eligible recipient and on the basis of the relative number of disadvantaged individuals and individuals with limited English proficiency served in vocational education programs. The states are left more or less to their own devices in determining how to allocate the remaining setasides.

Such an approach to intrastate allocation is not likely to improve access to high quality vocational education programs. Fully half of the funds allocated to an eligible recipient under the handicapped and disadvantaged setasides will be distributed simply on the number of students *enrolled* in a recipient, regardless of whether they have access to vocational education. To take an extreme example, under this arrangement a district with no handicapped or disadvantaged students enrolled in vocational education could still receive setaside funds.

The other half of the handicapped and disadvantaged setaside will be distributed based on the number of handicapped and disadvantaged students *served* by vocational education. "Served" is not defined, although it will probably be interpreted to mean the number of students enrolled in vocational courses or programs. Enrollment is a poor measure of access. In order to maximize the enrollment count, eligible recipients will be tempted to define vocational education as broadly as possible – including, for example, all students enrolled in typing courses regardless of their educational objectives. Further, enrollment in vocational education generally creates no incentives for recipients to increase access to more advanced or higher quality components of the vocational education curriculum. A frequent complaint from those concerned about the access of handicapped students to vocational education is that handicapped students have been relegated to introductory courses in industrial arts and consumer and homemaking. Basing the setaside distribution on the number enrolled in vocational education generally will do nothing to rectify such practices.

Finally, mere enrollment in a vocational education course or program is meaningless unless relevant skills and competencies are actually acquired. A handicapped student enrolled on census day and dropping out the next day will earn a recipient just as much setaside assistance as a handicapped student who completes two full semesters of vocational education instruction. Indeed, unscrupulous recipients would be within their legal rights to load vocational courses with students eligible for setasides, with the expectation that many would drop out soon after the enrollment census day.

Such problems are not limited to that part of the basic grant to be used for improving access. The distribution of the 43 percent to be used for program improvement, innovation, and expansion is also likely to be ineffective. The new legislation gives the states complete discretion as to how these funds are to be allocated to recipients. It simply lists 24 activities for which these funds may be expended. This menu of activities is so large and many are so vaguely defined that it is difficult to imagine that any recipient could not find a way to spend its relatively small federal allotment without changing a single aspect of its operations. For example, these funds may be used for, among other things:

- improving career counseling and guidance;
- the acquisition of equipment and of facilities;
- programs of modern industrial and agricultural arts;
- placement services;
- the acquisition of high-technology equipment;
- the acquisition and operation of communications and telecommunications equipment.

These are expenditures that most recipients make routinely on an annual basis, and while they do not constitute a major portion of total vocational education expenditures, neither does the federal dollar. It will not take a very creative accountant to figure out that as long as these routine expenditures are financed with federal funds, the recipient will be in compliance with federal law.

In short, as long as the allocation of federal funds is based on spending money on particular types of students or on particular types of instructional inputs, policy is not likely to have a demonstrable effect on educational outcomes. Under current law it is both legal and easy for a recipient to spend federal setaside money on handicapped and disadvantaged students enrolled in mediocre vocational programs. This is not improved access, it is meaningless reshuffling of students around in a bankrupt curriculum. Similarly, it is both legal and easy for a recipient to purchase the latest and fanciest equipment for a vocational program with no regard for whether the equipment is appropriate for the skill level of students and faculty or likely to increase significantly the acquisition of basic skills and competencies needed to perform effectively in a job related to training. This is not program improvement, it is blind pursuit of an educational holy grail. Sadly, these practices occur all too often, and the failure of federal policy to discourage them undermines those who do make careful and thoughtful efforts at real improvements in access and vocational education programs.

It can be argued, of course, that the educational system is inherently resistant to planning, evaluation, and resource allocation based on outcome criteria. For example, Hendrickson notes:

> Decisions on whether to continue a program are influenced by community pressure, student demand, presence of a tenured teacher, and, to a lesser degree, data. In fact, at the secondary level, student demand is likely to be the primary determinant of program offerings. In calling for student placement data and in encouraging their use in program planning, Congress is superimposing a rational process on a political one.[5]

Successful politics, however, does ultimately hinge on performance, and despite the large body of experience that would seem to contradict it, politics and rationality can co-exist. Indeed, as we have argued here, reliance on student placement data as the primary criterion for vocational education program planning evalution is not only conceptually flawed but also, given the quality of the data, subject to serious error. The decision to ignore the data, therefore, may be political, but it is also rational. The decision does not imply that the planning and evaluation process need be inherently input-oriented but rather that the specification of performance measures must be done more carefully and thoughtfully. Moving from a prescriptive to a permissive planning mode, therefore, ultimately depends on how well program outcomes can be defined and measured, subjects we take up in detail in the two chapters that follow.

Federal policy is not without some experience with permissive planning. The Job Training Partnership Act (JTPA), enacted in 1982, adopted a performance-based approach to the evaluation and funding of federally assisted job training programs, and a brief review of JTPA is a useful preamble to considering how permissive planning might work in vocational education.

LESSONS FROM JTPA

The Job Training Partnership Act (JTPA) of 1982 (P.L. 97-300) signaled a new development in federal policy concerning job training. JTPA eschews many of the prescriptive features of the Comprehensive Employment and Training Act (CETA) that preceded it. JTPA is relatively silent on what types of programs must be offered, who must offer them, and how this must be done. Rather, it urges careful specification of what *outcomes* training programs are expected to achieve and requires that service providers be held accountable for attaining these ends. In short, it prescribes results, while permitting a practically limitless variety of procedures and processes for obtaining these objectives.

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[5] Gerry Hendrickson, *Evaluating Vocational Education: The Federal Stimulus*, p. 30, footnote omitted.

JTPA adopts some basic tenets of human capital theory and applies principles of cost/benefit analysis to assess the rate of return for various training programs. It adopts as the basic measure of program performance "the increase in employment and earnings and the reductions in welfare dependency resulting from participation in the programs."[6] Programs whose costs exceed benefits are to be dropped, while those demonstrating positive rates of return are to be continued or expanded.

The Department of Labor set performance standards requiring youth training programs (serving disadvantaged youths aged 16 to 21 years) to have job placement rates of at least 41 percent and "positive-termination" (employed, in school, or in the armed forces) rates of 82 percent. Placement, however, was not the sole criterion for evaluation. The local Private Industry Councils (PICs) were also directed to develop sets of "competencies" that program participants would be expected to acquire. PICs could count as positive terminations participants who were placed in jobs or who successfully mastered the specified competencies. PICs successfully achieving their positive termination goals are rewarded, and those failing to do so are required to reorganize their training programs.

JTPA has been in operation for just over two years, and there is as yet only limited information on its effectiveness. Initial studies have shown that, overall, job placement rates have been high, with many sites equaling or surpassing their placement goals for all categories of enrollees with one important exception, disadvantaged youths. The failure to train disadvantaged youths as effectively is troublesome. Not only are they one of the primary targets of JTPA, but also the difficulties of meeting performance goals with this target group may increase the tendency of trainers to "cream," admitting only those individuals who are most likely to be placed in jobs and ignoring those hardest to serve. The evidence on whether creaming has actually occurred in JTPA programs is mixed. Some studies purport to have found it; others have not. Most report that program administrators complained that the focus on high performance standards diminishes their willingness to take risks, either with individuals or with innovative training programs.[7]

Although these findings are tentative, representing only very early experience with JTPA, they underscore the fact that adopting permissive planning in vocational education will work only if the performance standards are carefully designed to encourage the kinds of behavior desired. This is the task of the next chapter.

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[6] P.L. 97-300, Sec. 106 (b) (1).

[7] *Education Week*, January 23, 1985, p. 1.

CHAPTER FOUR

AN APPROACH TO PERFORMANCE-BASED EVALUATION OF VOCATIONAL EDUCATION PROGRAMS

At the federal and state levels, planning and evaluation of vocational education programs have traditionally been process-oriented. These efforts have been mainly concerned with such issues as the distribution and expenditure of different sources of funds, the types of curricula and special services provided, the size and composition of various advisory committees, the extent to which local labor market data are used to expand and contract programs, and so forth. Permissive planning, while it is not completely indifferent to these process issues, places more emphasis on determining what is accomplished than on analyzing how it is done. Permissive planning, therefore, requires a performance-based approach to evaluating and planning. Developing such an approach is the primary goal of this chapter.

The performance-based evaluation system developed in this chapter is intended primarily for assessing vocational education programs that have as one of their primary objectives preparing students for entry level employment in occupations that do not require a baccalaureate degree. Consequently, it is aimed at occupationally specific programs, which typically are offered in grades 11 and above, including postsecondary. It is not intended as a suitable method for directly assessing introductory programs or programs in industrial arts or consumer and homemaking education.[1] Furthermore, it is intended to improve the allocation of federal aid to vocational education, and perhaps in some cases state categorical assistance, at the margin. We take as given, therefore, that federal aid is not intended for general program support but rather to encourage and reward program improvement. The performance-based evaluation system is not intended as a primary tool for allocating general state and local funds for vocational education.[2]

An effective system of performance-based evaluation must meet three important criteria. First, it must use appropriate measures of program effectiveness. These must be quantifiable and well defined. Second, the approach must be adaptable to quantitative methods and procedures that states and LEAs can follow to evaluate program effectiveness. These procedures should permit comparisons across programs and LEAs. Third, it must be possible to tie the approach to a set of fiscal incentives that encourage and reward program improvement. If program performance has no bearing on financing, there is no reason for service providers to take evaluation seriously, and compliance concerns will continue to focus on inputs and procedures rather than program accomplishments. Successful implementation of the approach will also require accurate and timely data, but this subject will be treated separately in Chapter Five.

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[1] The results of the program evaluations could be used to flag certain introductory programs for further examination. Most introductory programs feed occupationally specific programs, and if a particular occupationally specific program performs poorly, assessing the introductory program that precedes it may help to improve future performance.

[2] The results of these program evaluations could be used to evaluate the allocation of general aid, particularly whether certain programs ought to be continued. However, the system developed here, while providing a method for distributing categorical aid to vocational education, does not constitute a full-blown allocation system for all vocational education funding.

THE OUTCOMES OF VOCATIONAL EDUCATION PROGRAMS

Historically, the primary goal of vocational education has been to prepare students for employment in occupations requiring less than a baccalaureate degree. Curiously, although the major concern of vocational education is *preparation* for employment, the primary test of the quality of vocational education programs has been employment itself, i.e., placement in a job related to training. There are many reasons why placement constitutes a poor measure of the quality of preparation. First, a program's placement rate is heavily influenced by general economic conditions. If demand for labor is strong in a particular field, even programs producing poorly prepared graduates may enjoy high placement rates; conversely, if demand for labor is weak, graduates of even the finest programs will have difficulty finding jobs. Placement, therefore, may often be more an indication of the demand for labor in a field than an indication of the quality of particular vocational education programs.[3]

Second, the emphasis on placement in *a field related to training* may often be misguided. At its best, vocational education programs provide students with a generic set of academic and work-related skills that will enable them to better adapt to a variety of occupational demands and to change occupations more easily when economic conditions or personal choice dictate it. Vocational education ought also to facilitate the pursuit of further education or training. Thus, particularly with less advanced programs, mere employment (regardless of the field) or continuing education may be as good or better indicators of program effectiveness than employment in a related field. As programs become more advanced or specialized, however, the related field requirement assumes greater weight, because the specialized training is not easily transferred to other occupations and is therefore wasted if the graduate chooses or, because of economic conditions is forced into, another field.

Third, just as placement is heavily influenced by economic conditions, it is also affected by discrimination and various types of stereotyping that limit the employment prospects of certain types of students regardless of how well prepared they may be. Vocational education has as one of its highest priorities improving the access of students with special needs — minorities, men and women wishing to pursue occupations not traditional for their sex, the handicapped, the disadvantaged etc. — to the highest quality of program consistent with their abilities. However, even if vocational education programs adequately prepare these students to perform in a particular occupation, they will face major obstacles in the labor market that diminish their chances for employment. In these instances, placement rates measure not so much the quality of the training program but rather the extent to which various kinds of discrimination continue to affect hiring decisions.

Fourth, even if placement were an appropriate measure of a programs's effectiveness (and under carefully controlled conditions, we think it can be one of several useful indicators), accurate and useful placement data have proven exceedingly difficult and expensive to obtain. Response rates for VEDS follow-up efforts were unacceptably low. In California, for example, despite the substantial investment of time and money at the secondary level in the Follow-Up of Students and Employers (FUSE), the employment status of 31 percent of the secondary students was unknown in the 1981 data collection. At the postsecondary level, the follow-up data were completely useless, with the employment status of over 70 percent of the students unknown. Information reported by employers was even less complete. Unfortunately, these follow-up results from California were typical of most states conducting the VEDS data collection.

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[3] If demand for labor in a particular field is weak, it can be argued that a program, no matter how exemplary, ought not to be offered at all. If weak demand is expected to persist for an extended period of time, this is a reasonable position. Note, however, that under conditions of protracted low demand, it is the quality of overall program *planning*, not program content or the quality of preparation, that is at issue.

In short, despite the popularity of placement data with Congress and many state legislatures, placement is a poor measure of how effectively programs prepare students for employment, especially if it is applied indiscriminantly as the single measure of program outcomes. What, then, constitute some more appropriate alternatives? We recommend concentrating on four types of outcomes:

- Employability
- Acquisition of generic academic and work-related skills
- Access
- Post-completion status

By "employability," we mean the acquisition of basic and job-specific skills required to perform effectively in entry level jobs related to training. We will have more to say below on how these skills are identified and how appropriate levels of performance are established. For now, let us simply assume that relevant skill levels can be determined for every entry level job in occupations not requiring a baccalaureate degree. Then, through a variety of competency testing procedures, the acquisition of these skills can be assessed quite independently of actual employment. An effective program, therefore, is one that successfully imparts these skills, making a student employable in a particular field. Employability, we believe, should be the primary criterion for evaluating the effectiveness of particular programs. Placement and other employment related measures are relevant for assessing the effectiveness of program planning, and secondarily the thorough and accurate specification of basic and job-specific skills required to perform a particular job, but they are not well suited to assessing how well students are prepared for work.

Employability represents sufficient preparation to perform a *specific job*. We consider it to be the most important program outcome and would not consider any student to have *completed* a vocational education program unless he or she has become employable. Indeed, in the approach to program evaluation we are proposing, program completion is synonomous with employability and certifies that the completing student has acquired the basic and job-specific skills necessary to perform effectively in an entry level job related to training. This definition has important implications for the procedures proposed for distributing federal funds, as well as data collection requirements, topics that will be addressed in more detail below.

Although program completion, or employability, constitutes the most desirable outcome to be achieved by a vocational education program, the acquisition of general academic and work-related skills is also desirable, even though these skills are not sufficient to ensure employability. They are transferable to other kinds of further academic or job-specific training and will accelerate that training if previously acquired. Therefore, we consider the acquisition of general academic and work-related skills to be another important program outcome.

Access cannot be assessed independently of employability or general skills, because if participation in a vocational education program does not, at the very least, lead to the acquisition of general academic and work-related skills or, more desirably, to employability, access is meaningless. A program that enrolls students with special needs but neither makes them employable nor increases their general skills perpetrates a cruel hoax. Enrollment is a necessary but not a sufficient condition for ensuring that special needs students benefit from the program, and the approach proposed here seeks to reward only those programs that can demonstrate results, preferably by increasing the number of special needs students completing the program or, at the very least, by demonstrating the acquisition of some general academic and work-related skills.

Finally, while we would still include post-completion follow-up outcomes in assessments of how well students are prepared for work or further education, we consider these unsuited to large scale, ongoing evaluation and would examine them only when the data are accurate and complete enough to permit using sophisticated statistical techniques to control for the large number of variables other than program quality that influence employment outcomes (e.g., economic conditions, hiring practices, student characteristics, etc.). The appendix to this chapter develops a statistical model for examining the relative effectiveness of different vocational education programs with respect to employment outcomes. We would employ it periodically (approximately every two to four years) to evaluate how well standards of completion have been specified for different vocational education programs and to assess vocational education generally with respect to other parts of the secondary and postsecondary curriculum.

For purposes of federal and state policy, ongoing program evaluation should concentrate mainly on the first and third of these performance criteria, employability and access. Both may be uniformly defined, and neither imposes an unreasonable burden in collecting and reporting accurate information. While monitoring general skills acquisition is desirable at the local level, it is more difficult to define in uniform, and therefore comparable, terms and would impose a substantially greater data burden. Moreover, whereas by definition general skill acquisition is a precondition for employability, which requires some job specific skills in addition, monitoring the endpoint in the preparation process will provide some good indications of how well the intermediate steps are being performed. Examination of follow-up data at the state or federal level should be limited to infrequent but in-depth analyses of sample data to assess and validate the ongoing evaluations of employability and access.

SOME OPERATIONAL DEFINITIONS FOR STATE AND FEDERAL EVALUATION

For purposes of state and federal evaluation of vocational education programs, three types of program outcomes must be defined: employability, access, and post-completion status. We shall take these up in turn.

Employability

In the system proposed here, employability is measured by program completion, which is defined as "satisfying the requirements for a degree, certificate, diploma, or other formal award *and* completing a vocational education program that certifies that the student has acquired the general and job-specific skills necessary to perform effectively an entry level job in an occupation related to the student's training." At the secondary level, therefore, students could be counted as completers of vocational education programs only if they also earn a diploma.[4] We recommend linking completion to some form of graduation requirement for two reasons. First, in today's economy the long term employment prospects of a student failing to finish high school are dim indeed and are not likely to be helped much by a vocational education program alone. It is highly desirable for vocational education programs to have powerful incentives to encourage their students to finish high school. Second, the requirement greatly simplifies data collection and reporting. A vocational education student need be counted only once in his or her educational career — at the time of graduation at the secondary level or, at the postsecondary level, at the time of an award of a degree, certificate, or other formal award.

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[4] Because many handicapped students are incapable of fulfilling the requirements for a high school diploma, the definition of a program completer needs to be modified somewhat for handicapped students in vocational education. For handicapped students, program completion should be defined as "satisfying the requirements for a diploma *or* completing the requirements of an IEP, *or* reaching the age of 21, *and* completing a vocational education program that certifies that the student has acquired the general and job-specific skills necessary to perform effectively an entry level job in an occupation related to training."

Note that this definition of completion is uniform in a generic sense — i.e., everywhere it represents certification that the student has been adequately prepared to perform an entry level job in an occupation related to training. It is not uniform, however, in the sense that all completers of a particular type of program have uniformly acquired the same skills. What constitutes adequate preparation can and *should* differ depending on local circumstances. For example, adequately preparing a student for an automotive job in a rural area typically requires stressing a broad range of general job skills, using less costly and less specialized diagnostic equipment than would be available in an urban area. Moreover, entry level positions in automotive occupations in metropolitan areas tend to be more specialized; for example, in an urban area, shops can specialize in muffler replacement or transmission repair and hire accordingly. In rural areas, there are not sufficient numbers to warrant this kind of specialization and an employee must be able to perform a greater variety of more general tasks to be fully occupied throughout the work day. Adequate preparation for automotive occupations, therefore, requires different kinds of preparation in different types of labor markets.

It is important that the kind of definitional uniformity required for vocational education policy purposes be well understood, for there is often a tendency, especially at the federal level, to press mindlessly for uniformity because of the mistaken impression that uniform definitions always improve data. If what must be uniformly reported is poorly thought through, the consequences for policy can be disastrous. For example, consider the wisdom of defining completion of an automotive program in terms a uniform set of skills that all students nationwide must acquire in order to be considered a completer. One would be confident that when adding program completers in rural areas to program completers in urban areas, one was in fact adding "the same thing," but the numbers would have no meaning for policy purposes. The policy concern is whether students have been adequately prepared to obtain entry level jobs, and if the content of these jobs differs locally, the kinds of skills imparted must differ to ensure adequate preparation. To insist on acquisition of a set of uniform skills is to ensure that all students are inadequately prepared, except for those able to find employment in areas with the "average" conditions represented by the set of uniform skills.

The definition of program completion proposed here permits a great deal of state and local discretion in determining what constitutes adequate preparation. While this is certain to make collectors and users of state and national data nervous, it has a much greater likelihood of producing useful data for policy than an attempt to impose definitions with specifying uniform skills.[5] For this approach to work, however, it must include some rigorous methods for validating locally determined standards for program completion and modifying those standards which are found to be inconsistent with effective job performance. We shall return to this need below.

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[5] Generally speaking, vocational education data have been so bad for so long (See Chapter Five) that those responsible for their collection and reporting have become especially sensitive to problems of data comparability and consistency. Unfortunately, this tends to produce an unnecessarily low tolerance for ambiguity or variability in collecting some vocational education data. We require relatively little "comparability" from most of the other national education data. For example, we routinely rely on reports of the national totals of students with high school diplomas or college degrees, knowing full well that there is substantial variation in precisely what the diplomas or degrees represent in terms of academic preparation and skill. Similarly, we often find it useful to know how many 12th graders are taking "math" or "science," without worrying about the large qualitative differences that exist among schools, LEAs, and states. It is not clear why it is necessary to subject vocational education data collection to a stiffer standard, especially if the insistence on comparability means that data cannot be collected at all.

Access

Traditionally, efforts to evaluate program access in vocational education have concentrated on monitoring the numbers of different types of students *enrolled* in particular vocational education programs relative to their numbers in the larger secondary or postsecondary population. This approach suffers from both conceptual and methodological flaws. Conceptually, the focus on enrollment provides no information on performance, either by the student or the program. Unless students complete a program or unless there is hard evidence that prior to completion they acquired some useful academic and other work-related skills, students enrolled in a program are simply marking time. Methodologically, accurate counts of program enrollment have proven very difficult to obtain (See Chapter Five).

We recommend, therefore, that the evaluation of access concentrate on monitoring program completions — by race and ethnicity, by sex, and by special need. With data on their distribution in the larger population, access by a particular type of student can be monitored using an "access ratio" defined as follows:

> the percentage of students of a particular type completing a particular vocational education program divided by the percentage of students of this type enrolled in the larger population.

The relevant "larger population" depends on the level of aggregation at which program completion is being assessed — school, LEA, state, region, or nation as a whole.

This access ratio provides a simple means for making quick comparisons of access across different programs, schools, LEAs, and states. When a vocational education program enrolls students of a particular type in direct proportion to their numbers in the larger population, this ratio will equal 1.00. When a particular type of student is under represented in a vocational education program, this ratio will be less than 1.00. It will be greater than 1.0 when a particular type of student is over represented. For example, if in a hypothetical comprehensive high school, boys constitute 25 percent of the completers of a secretarial program and 48 percent of larger school population, the access ratio of the secretarial program, with respect to boys, is .52 (25/48). If in this same school girls constitute 10 percent of the completers in a masonry program and 52 percent of the larger population, the access ratio of the masonry program, with respect to girls, is .19 (10/52). As the boys' access ratio of the secretarial program, .52, is higher than the girls' access ratio in the masonry program, the secretarial program is more effective at eliminating sex stereotyping than the masonry program. Similar ratios could be calculated with respect to race and ethnicity and various types of special need, as well as for the complete array of vocational education programs.

In the example just presented, the reader may question the need for the ratio, as it is quite clear from the simple percentages of boy and girl completers that sex stereotyping is more severe in the masonry program. We know this, however, only because we know that generally the larger population is evenly divided between boys and girls and this distribution does not vary significantly by school or school district. With respect to other types of students, however, the simple percentage is not sufficient to assess access. For example, we can say nothing about the accessibility of a particular program to disadvantaged students if we are simply told that 5 percent of the completers were disadvantaged. We need to know the percentage of disadvantaged students in the larger population, which will vary by school, LEA, and even by state. Thus, the access ratio automatically corrects for differences among schools, LEAs, and states in the relative distribution of different types of students in the larger population.

Whatever the unit of analysis — school, LEA, state, or nation as a whole — the calculated access ratios may displayed in a form similar to Table 2. Programs in which ratios differ significantly from 1.00 may be flagged for further examination.

These access ratios must be interpreted carefully, especially those measuring the access of handicapped students. In the case of some handicapping conditions, the handicap inherently limits or prevents participation in a particular program. It is not likely, for example, that one would find students with severe visual impairment completing an Airplane Piloting and Navigation program. The access ratio for visually impaired students in this program is likely to be 0.00; yet few would suggest that such a result is indicative of unfair denial of access. The problem, of course, is that what constitutes an inherent limitation and what constitutes unfounded assumptions about the capabilities of handicapped students or the abilities of programs to adapt to serve handicapped students is usually not so clear cut. A ratio significantly different (either larger or smaller) from 1.00, therefore, may be regarded as indicative of *possible* access problems for handicapped students; however, it should never be used as the last word.

Post-Completion Status

The proposed system would use conventional measures of post-program completion outcomes — e.g., labor market status, educational status, type of job, wages, duration of employment or unemployment, etc. These are well known, and we will not belabor them here. *How* follow-up is done would differ considerably from past practices, however. In the past, federal requirements for follow-up called for surveying annually the universe of program completers six months after completion. Not only did the size of this data collection effort make it impossible to obtain accurate data, but also the time between completion and follow-up was too short to produce much useful information, even if it could have been collected accurately. Furthermore, the follow-up effort was limited to vocational education students, preventing comparisons with other types of students.

Follow-up activity should continue, but less frequently and in a fashion that follows small samples of students for longer periods of time and collects more extensive data. Ideally, state-level efforts should piggyback onto ongoing follow-up activities at the federal level. The U.S. Department of Education presently supports two major longitudinal studies, the National Longitudinal Study of the Senior Class of 1972 and High School and Beyond (following a cohort of 1980 sophomores and 1980 seniors), that provide a rich database for analyzing what students do following participation in vocational education programs. A third study, the National Education Longitudinal Study is slated to begin in 1988, and efforts are now underway to tailor it for more comprehensive collection of data on vocational education. For each of these studies, the initial sample of schools and students is large enough to develop state-specific information for the eight largest states, and other states are encouraged to augment the sample to obtain state-specific information that they can use for their own policy purposes.

State follow-up linked to the national longitudinal studies would serve two important purposes. First, it would provide states with accurate extensive historical data for assessing their vocational (and non-vocational) education system. These surveys are sufficiently detailed to permit statistical control of the many variables, besides program characteristics, that affect employment and education outcomes after participating in a vocational education program. Second, analyses of these data would aid periodic assessments of how well local schools and school districts specify the requirements for program completion.

In summary, then, the system of program evaluation developed here would, at the state and federal level, concentrate on examining the number of completers produced by vocational education programs and rates of program completion among students by race, sex, and special need. States would also conduct analyses of data produced from the national longitudinal

TABLE 2
ACCESS RATIO DISPLAY

	SEX		RACE/ETHNICITY			DISADVANTAGE		HANDICAPPING CONDITION							
PROGRAM	Male	Female	White, not Hispanic	Black, not Hispanic	Other Minority	Academic. Disadvant.	Econonic. Disadvant.	Mentally Retarded	Emotionally Disturbed	Learning Disabled	Hard of Hearing	Speech Impaired	Visually Handicapped	Orthopedic. Handicapped	Other Health Impaired
Agricultural Mechanics															
Agricultural Production.															
Agricultural Products															
Agricultural Business															
Horticulture															
Agriculture, Other															
Accounting, Bookkeeping															
Data Procesing															
Secretarial & Related															
Typing, General Office															
Business & Office, Other															
Business & Personal Serv															
Food Marketing															
General Marketing															
Hospitality & Recreation															
Marketing & Dist., Other															
Nursing Related															
Allied Health, Other															
Nursing															
Consumer & Homemakin															
Child Care & Guidance															
Clothing, Apparel															

surveys of small smaples of secondary and postsecondary students. What would such a system require at the local level?

IMPLICATIONS AT THE LOCAL LEVEL

For a completion-based evaluation approach to work at the state and federal level, local procedures for certifying that completers are employable must be as rigorous and thorough as possible. We recommend, therefore, that competency-based curricula and competency testing become mandatory features of all vocational education programs receiving federal funds. Such a requirement is consistent with a new provision of the Carl Perkins Act, Section 113(b)(9)(a), which states that each state's plan for vocational education shall:

> provide assurances that the State will develop measures for the effectiveness of programs assisted under this Act in meeting the needs identified in the State plan, including evaluative measures such as:
>
> (i) the occupations to be trained for, which will reflect a realistic assessment of the labor market needs of the State;
>
> (ii) the levels of skills to be achieved in particular occupations, which will reflect the hiring needs of employers; and
>
> (iii) the basic employment competencies to be used in performance outcomes, which will reflect the hiring needs of employers.

This requirement is also consistent with the approach adopted in the Job Training Partnership Act (JTPA), which directs each local Private Industry Council (PIC) to develop sets of competencies for its youth training programs. Programs are to be responsible for developing competencies in at least one of four major areas:

> *Pre-Employment Competencies*: basic awareness of the world of work, including familiarity with a variety of career options, the level of education required to pursue each, and the likely income that can be expected from each; an understanding of one's own preferences, interests, and aptitudes; basic survival skills, including how to open a checking and savings account, rent an apartment, obtain a social security card, make knowledgeable purchases of basic consumer items, and so forth; job search skills, including preparing a resume, knowing where to look for job opportunities, filling out an application, and being interviewed.
>
> *Work Maturity Competencies:* demonstrated abilities to meet employers' expectations of basic responsibilities, such as regular and punctual attendance, proper dress, ability to carry out instructions, ability to work with others, and so forth.
>
> *Basic Education Competencies:* skills in reading, writing, computing, and communicating needed to function successfully in the workplace, with an emphasis on demonstrated ability to apply these skills in real work situations.
>
> *Job Specific Competencies:* basic and advanced skills required to perform effectively in a chosen occupation or cluster of occupations.

Each program must develop a set of specific, measurable competency statements along with appropriate "benchmarks" that establish an acceptable level of performance for each competency. Successful completion of the program, therefore, depends entirely on reaching the benchmarks that have been established for it, and the effectiveness of a program can be assessed by the number of successful completions it achieves.

Competency-based instruction would not be new to vocational education. Indeed, it is commonplace in many area vocational schools. Additionally, several states, such as Florida and New York, have begun efforts to require competency-based instruction throughout the statewide vocational education system. Competency-based instruction, however, is far from universal, absent most noticeably from most comprehensive high schools, where the majority of secondary vocational education still occurs. The use of competency-based instruction is also spotty at the postsecondary level.

Competency-based instruction in vocational education requires careful identification and measurement of two general types of skills, basic skills and job specific skills. Each of these types can be illustrated in detail.

BASIC SKILLS

What kinds of basic skills are required to perform effectively on the job? A panel of distinguished educators and business people recently considered this question for the National Academy of Sciences. They concluded that:

> the need for adaptability and lifelong learning dictates a set of core competencies that are critical to successful careers of high school graduates. These competencies include the ability to read, write, reason, and compute; an understanding of American social and economic life; a knowledge of the basic principles of the physical and biological sciences; experience with cooperation and conflict resolution in groups; and possession of attitudes and personal habits that make for a dependable, responsible, adaptable, and informed worker and citizen. Together these competencies comprise what are needed to prepare a young person for an uncertain future.[6]

The panel went on to list a number of skills required by employers in each of the major competency areas. These are summarized below to illustrate the kinds of basic skills that should become part of a performance-based model of vocational education.[7]

Command of English: a functional command of standard English in its written and spoken forms.

Reasoning and Problemsolving:

- Identify problems
- Consider and evaluate possible alternative solutions
- Formulate and reach decisions logically

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[6] Panel on Secondary School Education for the Changing Workplace, *High School and the Changing Workplace: The Employers' View*, Washington, D.C.: National Academy of Sciences, 1984, p. 19.

[7] Ibid., pp. 20 – 26.

- Separate fact from opinion
- Adjust to unanticipated situations by applying established rules and facts
- Work out new ways of handling recurring problems
- Determine what is needed to accomplish work assignments

Reading:

- Understand the purpose of written material
- Note details and facts
- Identify and summarize principal and subsidiary ideas
- Be aware of inconsistency in written material
- Verify information and evaluate the worth and objectivity of sources
- Interpret quantitative information

Writing:

- Gather information suitable for the purpose
- Organize information in a logical and coherent manner
- Use standard English syntax
- Apply the rules of correct spelling, punctuation, and capitalization
- Attribute references correctly
- Use reference books such as a dictionary, a thesaurus, and an encyclopedia
- Write legibly

Computation:

- Add, subtract, multiply, and divide whole numbers, decimals, and fractions accurately
- Calculate distance, weight, area, volume, and time
- Convert from one measurement system to another, for example, from English to metric
- Determine the costs, time, or resources necessary for a task
- Calculate simple interest
- Compute costs and make change
- Understand simple probability and statistics
- Calculate using information obtained from charts, graphs, and tables
- Use ratios, proportions, percentages, and algebraic equations with a single unknown
- Estimate results and judge their accuracy

Oral Communication:

- Communicate in standard English
- Understand the intent and details of oral communications
- Understand and give instructions
- Identify and summarize correctly principal and subsidiary ideas in discussions
- Obtain, clarify, and verify information through questioning
- Participate effectively in discussions

Interpersonal Relationships

- Interact in a socially appropriate manner
- Demonstrate respect for the opinions, customs, and individual differences of others
- Appreciate the importance and value of humor
- Offer and accept criticism constructively
- Handle conflict maturely
- Participate in reaching group decisions

Social and Economic Studies:

- The history of present-day American society
- The political, economic, and social systems of the United States and other countries
- The fundamentals of economics, including a basic understanding of the roles of money, capital investment, product pricing, cost, profit, and productivity, and market forces such as supply and demand
- The concept of "trade-offs" and the differences between economic principles, facts, and value judgments
- The roles of industry and labor in creating wealth, maintaining employment, and raising the standard of living
- Basic awareness of the world of work, including familiarity with a variety of career options, the level of education required to pursue each, and the likely income that can be expected from each
- The rights and responsibilities of citizens
- Civil rights and justice in a free society

Personal Work Habits and Attitudes:

- A realistic positive attitude toward one's self
- A positive attitude toward work and pride in accomplishment
- A willingness to learn
- Self-discipline, including regular and punctual attendance and dependability
- The ability to set goals and allocate time to achieve them
- The capacity to accept responsibility and carry out instructions
- The ability to work without supervision
- Appropriate dress and grooming
- An understanding of the need for organization, supervision, rules, policies, and procedures
- Freedom from substance abuse
- Appropriate personal hygiene
- The ability to search for a job, including preparing a resume, knowing where to look for job opportunities, filling out an application, and being interviewed

Although it is unlikely that a particular vocational education program could significantly improve all of these "core" competencies, concentration on different subsets by different types of vocational programs would be highly desirable. Automotive programs, for example might be particularly well suited for imparting certain mathematical concepts such as measurement and use of ratios. Office programs might place more emphasis on writing and oral communication skills. Vocational programs engaged in the production of real goods and services (e.g., a building trades program that builds and sells a house) would provide excellent opportunities for teaching the fundamentals of economics. In short, programs should be encouraged to identify those basic skills they are especially effective in teaching, and students' mastery of those skills should be tested and evaluated.

JOB SPECIFIC SKILLS

Job specific skills include the knowledge and skills normally required to carry out entry-level tasks in a specific occupation or cluster of occupations. Imparting job specific skills is the mission traditionally associated with vocational education. Although there is likely to be some disagreement over what precisely constitutes "entry level," identifying job specific skills for a particular occupation is relatively straightforward. An entry-level automechanic, for example, might be expected to have mastered the following specific skills:

- familiarity with shop safety and basic shop procedures
- knowledge of basic shop tools and equipment
- ability to perform basic lubrication, battery, and cooling service
- ability to perform basic tire service
- ability to perform a basic tune-up
- ability to service emission control equipment
- ability to perform headlight adjustment and lamp replacement
- ability to perform basic brake service
- ability to perform basic front end service

Program completion, then, should certify that a student has mastered the appropriate mix of basic and job specific skills required to perform entry level work effectively in an occupation related to training. For example, Table 3 lists the basic and job specific skills required by one of California's Regional Occupation Centers before secondary school students are certified as having completed a program in auto mechanics. Students are tested on all aspects of the program, and those achieving passing scores or better are awarded certificates of completion.

As is evident from this single example, defining program completion standards for several hundred different vocational education programs is a large task. Although a few states and some local school districts — especially those operating vocational high schools, area schools, or technical institutes — have developed detailed descriptions of basic job specific skills to be taught in each vocational program, the practice is far from universal. Furthermore, adequate testing of skill acquisition is not fully developed. Testing tends to be strongest in programs preparing students for occupations requiring a license or credential.

Because competency-based instruction is not now universally used and because much additional work remains to be done on effectively assessing competencies, adopting a competency-based vocational education system nationwide will be a major undertaking. Skills must be defined in terms that are measurable and relatively free from bias, and appropriate levels of competency must be established for each program. None of this can be accomplished quickly or easily, and local schools and school districts will need substantial discretion to develop standards that fit their local circumstances. To accelerate and standardize the process, it will be tempting to establish statewide standards for each major program. At the outset, however, the temptation to do this should be resisted. There is too much variety among programs from one location to another to make this approach feasible. Nor is it clear that statewide standards would even be desirable. Many programs are designed to meet specific local needs, and there is no reason to force all vocational programs into a single mold simply to facilitate the evaluation process.

To assist local districts with the development of competencies and benchmarks, states could develop model sets of competencies, beginning with those vocational programs that prepare students for occupations subject to state licensing. This is the appropriate place to start because there is more likely to be consensus on what competencies are required and what level of performance is appropriate. As experience is gained in these program areas, efforts may shift to programs where consensus is likely to be more difficult to achieve.

TABLE 3
BASIC AND JOB SPECIFIC SKILLS REQUIRED FOR SUCCESSFUL COMPLETION OF AUTO MECHANICS PROGRAM

BASIC SKILLS

1. **Reading Skills**
   - a. Able to read and understand abbreviations — lbs., psi., etc.
   - b. Able to read and understand technical vocabulary — chassis, transmission, drive train, compression, etc.
   - c. Know where to find technical information — specification manual, electrical wiring information, etc.
   - d. Able to follow simple directions requiring 1 or 2 steps (e.g., safety directions)
   - e. Able to read technical information (e.g., adjusting valves, timing)
   - f. Able to apply information from reading to practical situations (e.g., specification/motor manuals for tune-up, brakes, or lube job)
   - g. Able to read and interpret information on charts, graphs, or diagrams (e.g., diagrams of auto parts)

2. **Writing Skills**
   - a. Able to write legibly
   - b. Able to write numbers
   - c. Use correct spelling — general vocabulary
   - d. Able to spell relevant technical terms — e.g., solenoid, carburetor, etc.
   - e. Able to answer questions or fill in reports with one or two words (inventory, ordering)
   - f. Able to understand and complete forms needing numbers — e.g., repair orders, purchase orders, etc.
   - g. Able to record observations

3. **Computational Skills**
   - a. Able to read and understand place values for whole numbers
   - b. Able to read and write decimals
   - c. Able to read and write simple fractions
   - d. Know basic addition and subtraction (add and subtract two-digit numbers, including decimals)
   - e. Able to multiply whole numbers and decimals by one- or two-digit numbers
   - f. Able to divide a whole number by a one- or two-digit number
   - g. Able to change a fraction to a decimal and reverse
   - h. Able to add and subtract money
   - i. Able to make linear measurements
   - j. Able to make volume measurements
   - k. Able to measure angles
   - l. Able to use and understand ratios

4. **Verbal/Listening Skills**
   - a. Able to answer direct questions
   - b. Able to follow simple and complex oral directions
   - c. Able to give directions and explain procedures to others
   - d. Able to observe and describe accurately

JOB SPECIFIC SKILLS

1. **Skill:** The student is familiar with shop safety, basic shop procedures and regulations.
   Performance standard: The student will score 70 percent or better on a test of shop safety, basic operating procedures, and regulations.

TABLE 3 (CONT.)

2. **Skill:** The student is familiar with basic shop tools and equipment
   Performance standard: The participant will score 70 percent of better on a test examining the student's knowledge of shop tools and equipment.

3. **Skill:** The student can perform basic lubrication, batter, and cooling services.
   Performance standard: The student will achieve a score of satisfactory or better on tests of the student's ability to lubricate the chassis, change engine oil and filter, test and change anti-freeze, test cooling system pressure and check for leaks, check transmission oil, test battery, check electrolyte level, and recharge and replace battery.

4. **Skill:** The student can perform basic tire service.
   Performance standard: The student will achieve a score of satisfactory or better on tests of the student's ability to change a tire, repair a flat, static tire balance, and spin tire balance.

5. **Skill:** The student can perform a basic tune-up.
   Performance standard: The student will achieve a score of satisfactory or better on tests of the student's ability to analyze an engine with an oscilloscope, test compression, use a vacuum guage, use an ohmmeter to test plugs, time an engine with a timing light, use a distributor machine, use a volt/amp tester, use a coil tester, adjust a carburetor, and adjust valves.

6. **Skill:** The student can service emission control equipment.
   Performance standard: The student will achieve a score of satisfactory or better on tests of the student's ability to test emission control equipment and service the smog system.

7. **Skill:** The student can perform headlight adjustment and lamp replacement.
   Performance standard: The student will achieve a score of satisfactory or better on a test of the student's ability to adjust headlights and replace lamps.

8. **Skill:** The student can perform basic brake service.
   Performance standard: The student will achieve a score of satisfactory or better on tests of the student's ability to inspect the brake system, use brake system measuring tools, reface brake drums, reface brake disc rotors, repair the master brake cylinder, replace a wheel cylinder, grind brake shoes, use a pressure bleeder, and use manual pullers.

9. **Skill:** The student can perform basic front end service.
   Performance standard: The student will achieve a score of satisfactory or better on tests of the student's ability to inspect the front end, repair front suspension, align the front end, replace shock absorbers, and replace the MacPherson shock struts.

Initially, these state models should be used for discussion purposes only; it would be premature to attempt to develop competencies and performance standards to be adopted uniformly statewide. As experience is gained with competency statements, and as the efforts of local school districts are assessed with regard to similarities and differences, the adoption of statewide standards in at least some programs may be reconsidered.

At the local level, developing competencies and performance standards should include substantial assistance from employers and labor unions in defining competencies and establishing benchmarks of performance that are necessary to succeed in specific occupations and industries. Employers must enter these discussions with the understanding that it is encumbent upon them to be specific about their needs for basic education and job skills. Too many employers, when queried about the kinds of abilities they seek in employees, have been wont to reply: "Just give us people with basic skills. We'll do the specific job training." This response not only begs the question, but also, if the requirements set forth in the want ads are any indication, badly misrepresents what employers really want when they are seeking skilled labor. Few companies expect to have to teach secretaries how to type, bookkeepers how to do basic accounting, electronic assemblers how to solder, or programmers how to use COBOL. Yet these are hardly "basic" skills that we expect all students to have in their generic toolkits. In this regard, the entire debate over "basic vs. job specific" skills is misleading, for many of the skills acquired by students, especially as their educational careers advance, will not fit neatly into one category or the other, especially if these skills are taught with any eye toward their application in real life situations.

CREATING FISCAL INCENTIVES TO PRODUCE PROGRAM COMPLETERS

Historically, federal funds intended to improve the quality of vocational education programs and to improve access have been distributed largely on the numbers of students *enrolled* in vocational education. Although other factors, such as local wealth or unemployment rates, have also figured in the distribution, the dominant factor has always been some type of enrollment measure. Under these arrangements, schools and LEAs have earned program improvement and setaside funds regardless of what happens to students enrolled in vocational education programs. Outcomes, then, have had little or nothing to do with funding in all but a few states that have attempted to implement some performance standards (typically, a minimum job placement rate similar to the requirements of JTPA).

The approach to performance-based evaluation developed in this chapter provides an alternative to enrollment-based allocation of federal funds: these funds could be allocated based on the number of *completers* produced by a school or LEA. As is currently the practice under the Perkins Act, the basic grant would be divided into two approximately equal amounts, one for promoting general program improvement and the other for improving program access for special populations.[8] Sums available under the program improvement portion of the basic grant would be allocated to eligible recipients based on the number of vocational education program completers graduated in the preceding year. Sums available under the access improvement portion of the basic grant would be distributed to eligible recipients based on the number of students from special populations who completed vocational education programs in the previous year. The sums received under both portions would be additive — i.e., a special population completer would earn funds under the program improvement allocation and under the access improvement allocation.

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[8] Under current law 43 percent of the basic grant is reserved for program improvement, 53 percent for program access.

Special populations would include men and women enrolled in programs nontraditional for their sex, racial and ethnic minorities, disadvantaged students (including those with limited English proficiency), handicapped students, adults in need of retraining, single parents and homemakers, criminal offenders in correctional institutions, and any other group that Congress might designate. As under current law, the access portion of the basic grant could be divided into sub-portions for each special population.

Eligible recipients would earn funds under the access improvement grant for completers with special needs in programs with access ratios less than 1.0 for that particular special need. For example, an eligible recipient would earn access improvement funds for all black completers in programs with access ratios of less than 1.0 for black students. They would receive no additional access improvement funds for black completers in programs with access ratios of 1.0 or greater for black students (they would, however, receive program improvement funds based on the number of *total* completers in all programs, regardless of access ratio). Limiting the receipt of access improvement funds to programs with access ratios of less than 1.0 ensures that these funds will not create incentives to direct students with special needs into less advanced programs where the probability of completion is higher.

If the allocation of federal funds were based on completers, the amount per completer would be quite large compared to the amounts per student available under an enrollment-based distribution system. For example, in 1978-79, total federal expenditures of $658 million amounted to only $39 per student for the 17 million students enrolled in vocational education but amounted to $375 per completer for the 1.75 million students completing vocational education programs.

Had the federal funds in 1978-79 been divided into two equal parts, one for general program and one for improving access, and the funds been distributed based on completions, as described above, eligible recipients would have received $187.50 per completer under the program improvement grant and, assuming about 30 percent of the completers were students with special needs, about $625 per completer under the access improvement grant.[9] As the amount per completer under this access improvement grant is quite large, it would have provided a powerful incentive to increase the number of special needs completers in programs with access ratios less than 1.0.

The approach to funds distribution proposed here has two major advantages over current policy. First, the receipt of funds depends on successful program performance, generally and with respect to students with special needs. Second, compared to past practices, completer-based allocation is simple to understand and to administer. Both features would greatly improve federal vocational education policy.

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[9] Whether 30 percent of completers in 1978-79 were, in fact, in special needs categories and whether they would also have completed programs in which access ratios were less than 1.0 for their particular special needs category cannot be determined. However, it is not likely that the percentage of special needs completers was greater than 30 percent, and the assumption indicates clearly that the amounts per completer under the access improvement grant would be substantial.

CHAPTER 4
APPENDIX

The approach to performance-based evaluation described in this chapter focuses on program completion and program access (as measured by rates of completion by race, sex, and special need) as the primary criteria for assessing program effectiveness. For purposes of routine, on-going evaluation, this approach *assumes* that program completion is synonomous with employability and that, therefore, programs with higher rates of completion are more effective than programs with lower rates. Periodically, this assumption needs to be tested with a more comprehensive analysis of program outcomes to determine how well the required competencies and performance standards have been specified for each vocational education program. In this appendix, we sketch an analytic methodology for an in-depth assessment of program outcomes.

The model outlined here has as its primary objective quantifying the relative effectiveness of various vocational education programs, controlling for a number of contextual variables that influence program outcomes but are beyond the control of vocational educators and administrators to change. In its most general form, the model may be expressed as follows:

Program Outcomes = f(Program Quality, Context)

Table 1 lists a variety of measures for each of these three types of variables. To sort out the effects of these different variables on program outcomes, we need a methodology that can quantify the relative contributions of the contextual and qualitative variables on program outcomes.

There are a number of statistical techniques for separating the effects of causative factors. One of these is multiple regression. Expressed in a form that can be estimated using multiple regression, the general equation above becomes:

$$\mathrm{OUTCOME}_{ij} = a_0 + b_{1ijk}\mathrm{CONTEXT}_{ijk} + b_{2ijm}\mathrm{QUALITY}_{ijm} + e_{ij} \qquad (1)$$

Where

$\mathrm{OUTCOME}_{ij}$ = an array of outcome variables, j, for program i

$\mathrm{CONTEXT}_{ijk}$ = an array of contextual variables, k, for program i and outcome j

$\mathrm{QUALITY}_{ijm}$ = an array of quality variables, m, for program i and outcome j

e_{ij} = an error term

and where a_0 is a constant and b_{1ijk} and b_{2ijm} are coefficients describing the contribution of each of these sets of variables to the program outcome measures.

Consider the array of variables represented by QUALITY for any particular program i. These might include such characteristics as curriculum quality, adequacy of facilities and equipment, class size, instructor experience and other qualifications, and so on. In effect, QUALITY represents a set of programmatic characteristics within the control of vocational educators that affect program outcomes. The effects of these characteristics are what the model seeks to isolate from the noncontrollable contextual variables.

While some of these programmatic characteristics, such as class size and instructor experience, can be measured, some of the most important ones, such as curriculum quality, cannot. Using

TABLE 4

Measures of Program Outcomes, Contextual, and Qualitative Variables

PROGRAM OUTCOMES

- Placement in a job related to training
- Placement in another job
- Length of time unemployed
- Earnings
- Acquisition of specific occupational skills
- Acquisition of basic skills
- Further education or training
- Reduced stereotyping with respect to race, sex, or special need

CONTEXTUAL VARIABLES

Characteristics of Students

- Scholastic Aptitude
- Socio-economic background
- Race
- Sex
- Handicapping condition
- English speaking ability

Characteristics of the Delivery System

- Institutional setting (comprehensive high school, area school, community college, etc.)
- Geographic location (urban, suburban, rural)

Economic Conditions

- Local, regional, and national unemployment rates
- Relative growth rates in occupations related to training
- Relative wage levels in occupations related to training

PROGRAM QUALITY

- Experience of instructor
- Condition of supplies and equipment
- Expenditures per student
- Student/teacher ratio
- Level of performance standards

partial measures of program quality could produce seriously inaccurate results and provide incentives to institutions to do well on aspects that are measured, which may not be the most important. Furthermore, program quality depends not only on these individual factors, but on how they are put together. For example, large class sizes are not necessarily inferior to small ones. What is more relevant is that the number of work stations for students match the number of students so that students do not have to wait for access to equipment.

Were the model concerned with fully explaining the variation in effectiveness among programs, it would need to have quantitative measures for these programmatic characteristics. The objective, however, is only to isolate the effects of those variables beyond the immediate control of program deliverers from those over which they do have control and which, in sum, they may be held accountable for finding an effective mix. What we are concerned with is the combined effect of the variables that can be manipulated by program deliverers. How they manipulate individual variables is of no concern in this model (although this is a perfectly legitimate and important concern of other types of research efforts). It is concerned only with the results that have been achieved. Consequently, estimating these programmatic effects requires manipulating equation (1) so that QUALITY_{ij} becomes the dependent variable

$$b_{2ij}\text{QUALITY}_{ij} = \text{OUTCOME}_{ij} - (a_0 + b_{1ijk}\text{CONTEXT}_{ijk} + e_{ij}) \qquad (2)$$

QUALITY, then is what is left when the effects of the contextual variables are subtracted from the OUTCOME measures. The outcomes can be estimated in terms of only contextual variables as follows:

$$\text{OUTCOME}_{ij} = a_0 + b_{1ijk}\text{CONTEXT}_{ijk} + e_{ij} \qquad (3)$$

Using the regression coefficients resulting from equation (3), the expected outcome, $\text{OUTCOME}_{ij}{}^*$ given the contextual effects, can be computed for each program i for outcome j in each district:

$$\text{OUTCOME}_{ij}{}^* = a_0 + b_{2ijk}\text{CONTEXT}_{ijk} \qquad (4)$$

Then,

$$\text{QUALITY}_{ij} = \text{OUTCOME}_{ij} - \text{OUTCOME}_{ij}{}^* \quad (5)$$

QUALITY_{ij}, therefore, computed for each district, provides an estimate for each program i, the quality of that program with respect to the outcome variable j. The absolute value of QUALITY would not have any real-world meaning, but the value is an indicator of the *relative* effectiveness of a program (with respect to a particular outcome) in one district compared with the same program in another district. A large value for QUALITY would mean that there was a big difference between the actual outcome and the outcome than would be expected on the basis of the contextual characteristics alone. This might occur, for example, in a program that had a large number of disadvantaged students who would normally not be expected to have highly successful outcomes, who in this case did very well because of an exceptional instructor who carefully tailored the material to the students.

A model constructed along these lines would permit several types of analysis to aid state and local planning. First, for any particular type of vocational education program (electronic technology, for example) it would permit statewide ranking of program offering and identification of those districts which appeared to be offering the most effective programs (say those in the top twentieth percentile) or the least effective programs say those below the twentieth percentile). Second, by computing statewide or regional averages, it would permit a state to rank programs by type, comparing the relative effectiveness of, say, welding versus carpentry or masonry. Third, the model would permit districts to see how their program offerings performed relative to one another and relative to others in the state or nearby districts. Such information would also aid consumers to vocational education, who have options among offerings of local school districts and those provided by community-based organizations or proprietary schools. Similarly, such information could assist PICs in the selection of program deliverers for JTPA. Fourth, the model would permit a number of additional inquiries, including analysis of cost-effectiveness, differences among different kinds of delivery systems, the influence of certain student and district attributes on program effectiveness, and so forth. These are topics that have been much discussed in vocational education, but that to date have eluded systematic analysis.

CHAPTER FIVE

IMPROVING VOCATIONAL EDUCATION DATA

If the performance-based approach to evaluation developed in the previous chapter is to provide vocational educators and policy makers with useful findings, it must use data that are accurately and consistently reported. Unfortunately, accurate and consistent data for vocational education have eluded federal policy for over two decades, despite several serious and costly attempts to improve the information. By far the largest effort was the establishment of the Vocational Education Data System (VEDS) by the 1976 Amendments to the Vocational Education Act. VEDS was intended to generate uniform data on vocational education students, programs, program outcomes, staff, facilities, and expenditures. Congressman Carl Perkins, Chairman of the House Committee on Education and Labor, summarized the general purpose of VEDS in his opening remarks on VEDS during hearings on December 10, 1981: "In mandating this system, Congress was responding to a lack of adequate data to judge program effectiveness and to make important decisions about future directions."

VEDS began collecting data in 1978-79 and continued collecting data for four years. No one knows how much VEDS cost — some estimates have been as high as $200 million when the resources expended by state and local personnel were counted — but by 1983, the realization was growing that the latest attempt to improve vocational education data had failed. In 1983, the National Center for Education Statistics, the federal agency responsible for the design and administration of VEDS, performed a number of validity tests on the four years of accumulated data. These checks confirmed what many critics of VEDS had argued from the outset: three major problems plagued the system:

1. *Lack of comparability among states*. Data were not comparable from state to state and, therefore, yielded misleading national totals when aggregated.

2. *Year-to-year variability*. The data exhibited excessive variation over time, which was difficult to explain. Consequently, the VEDS data could not be used to describe trends over time accurately.

3. *Within state discrepancies*. When VEDS data from some states were compared to state data from other sources, many large discrepancies were observed; these could not be adequately explained.

Following these findings by NCES, the Office of Management and Budget (OMB), in December 1983, withdrew approval for collecting VEDS data for 1983-84 and 1984-85, because "VEDS has substantial and continuing problems collecting data which are accurate and meaningful." OMB directed that the "collection should not be undertaken at this junction and should remain suspended until the Department [of Education] has fully implemented the plan for improving VEDS."

In February 1984, the NCES Administrator, with the concurrence of Office of Vocational and Adult Education, made the following statement about VEDS in a memo to the Secretary of Education:

> The current [VEDS] system has serious technical problems. NCES believes that the technical problems do not lend themselves to correction without a major system redesign. The data are unreliable and subject to serious misinterpretation.

VEDS was dead.

The failure of VEDS did not dissuade Congress from trying once again. Section 421 (a)(1) of the Carl Perkins Act directed NCES to develop, in consultation with the Congress:

> a national vocational education data reporting and accounting system using uniform definitions. The system required by this section shall include information on vocational education —
>
> (A) students (including information concerning race, sex, and handicapping condition)
> (B) programs,
> (C) program completers and leavers,
> (D) placement and follow-up,
> (E) staff,
> (F) facilities, and
> (G) expenditures in relation to the principal purposes of this Act.

Additionally, Section 423 of the new law directed the Secretary of Education to ensure that adequate information is collected on the access of secondary handicapped students to vocational education programs. It stipulated that data on handicapped enrollment were to be reported biennially by "instructional setting" and "handicapping condition," in "4-digit detail as defined in A Classification of Instructional Programs (CIP)" published by the National Center for Education Statistics

The new data reporting requirements differ from VEDS in several important respects. First, to improve the quality of data and to reduce the burden of collecting it, the system is to rely heavily on sampling rather than surveying the universe of providers of vocational education programs. Second, the national collection is no longer confined to using data collected by the states. Third, instead of annually collecting all vocational education data, the system is to be updated no more frequently than every two years. The legislation gives wide discretion to the Secretary of Education, who in consultation with Congress is to determine the number and types of vocational education institutions to be sampled, the appropriate methodologies, sample sizes, appropriate analyses, and the frequency of relevant studies.

Despite these changes, however, it is likely that NCES will still encounter significant problems in responding to the Congressional mandate. There remain basic misunderstandings about the difficulties associated with collecting vocational education data, and until these can be resolved, Congress will continue to ask for information that, at reasonable cost, simply cannot be collected accurately. It is important, therefore, for policy makers to understand what data can be obtained and how they can best be collected. The rest of this chapter outlines our conclusions about the feasibility of collecting various types of vocational education data and outlines a new approach to collecting vocational education data that tries to avoid the major problems encountered with VEDS.

LESSONS FROM VEDS

• *The data required for accountability and policy cannot be satisfied with a single, annual data collection.*

VEDS failed to distinguish between data required for accountability and data required for policy making. It adopted a single strategy for doing both and as a result could do neither. In the view of one observer:

> The reason VEDS failed to provide good information is that it was not designed with that end in mind. Instead, VEDS was designed as an exercise in accountabilty and compliance to produce official numbers corresponding to a wide range of Federal purposes and concerns....the system never held any promise of yielding information.[1]

One of the major shortcomings of VEDS, and indeed of the authorizing legislation as well, was the failure to distinguish carefully the kind of information needed for purposes of *accountability* from the kind of information needed for purposes of *policy making*. The data necessary to ensure that recipients of VEA funds are conforming to the official requirements of the law need to be maintained annually by all recipients. For compliance purposes, sampling does not suffice; each recipient needs to maintain sufficient, auditable information. Ideally, because these data requirements must be imposed universally, they should be as simple as possible and limited to the bare essentials for program accountability. Moreover, it is rare that all data needed for accountability need to be reported, as long as the information is maintained on site for possible audit or review by the interested public.

Satisfying the requirements for addressing major policy issues involves more detailed and more complex data. However, policy-related data may usually be collected less frequently and from samples of respondents, greatly reducing the burden that would be imposed if these needs were to be met by the methods used to collect data for purposes of accountability.

A better distinction between accountability requirements and policy requirements for data is needed to resolve some of the major problems that have plagued the collection of national data for vocational education. For example, what constitutes vocational education and who is a vocational education student are two questions that have generated considerable controversy and confusion. VEDS took the position that only students enrolled in programs approved under the State Plan, and therefore eligible for VEA funds, were to be counted. For purposes of accountability, this position is eminently sensible. Congress wants to know how many students directly benefit from VEA funds. Moreover, requiring recipients of federal funds to determine and report the number of students served is basic to sound program management.

For policy purposes, however, this decision leaves much to be desired. As long as states enjoy considerable discretion in determining what programs are eligible for VEA funds, the "State Plan universe" will fall far short of describing the total vocational education enterprise.[2] To assess the extent of coverage achieved by VEA funds, to evaluate the adequacy of the labor supplied by various training institutions, and to assess the relationship between vocational education and other aspects of the secondary and postsecondary system, there is a need for information that describes with reasonable accuracy the nature of the overall enterprise.

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[1] Robert E. Barnes, "Why VEDS Failed," Office of Planning, Budget, and Evaluation, U.S. Department of Education-, February 1984, mimeo, p.2.

[2] Under the new legislation, the "State Plan universe" is even more likely to pose problems for adequately describing the vocational education enterprise. Many states plan to distribute federal vocational education funds on the basis of proposals from individual LEAs rather than on the basis of formulas. Consequently, many LEAs with vocational education programs will not receive federal funds. Moreover, the identity of LEAs receiving funds will change from year to year. Therefore, data collected only from LEAs receiving federal funds will serve accountability interests only; for purposes of addressing basic policy issues, such data will be useless.

VEDS tried to satisfy data requirements for accountability and policy with a single annual census, conducted by the states, of all recipients of VEA funds. The fine detail required for policy purposes proved too much for the states and LEAs to report accurately and efficiently.

- *Any attempt to collect detailed national data on vocational education enrollment using an annual census approach will continue to suffer from problems of inaccuracy, inconsistency, and lack of comparability.*

Traditionally, efforts to determine who is served by vocational education have concentrated on attempting to count the number of students enrolled in vocational education during the course of the school year. These efforts have sought an unduplicated count of students and have also sought to identify enrollment by specific types of vocational education programs. Such a seemingly simple task is in fact quite complex and may even be impossible to accomplish consistently and accurately, if one attempts to do so through an annual cross-sectional survey. There are several reasons for this difficulty.

First, at any single point in time, it is not easy to determine who is a vocational education student and who is not. At both the secondary and postsecondary level, students enroll in courses, not programs, and for most school systems, courses constitute the basic accounting unit for purposes of attendance, scheduling, grading, and reporting. However, many courses, particularly at the introductory level, are taken both by students who intend to pursue a vocational program and by those who do not. Therefore, enrollment in a particular course is often not sufficient to identify a student as vocational. Moreover, many vocational education students, especially at the post-secondary level, take more than one vocational education course during the academic year. Because courses, not programs, are the basis for maintaining attendance, obtaining unduplicated counts of vocational education enrollment is problematic. Consequently, most schools have been hard pressed to count vocational students accurately.

Requiring enrollment by specific program compounds this problem. A program is a sequence of courses, and although the Classification of Instructional Programs (CIP) provides a uniform definition for some four hundred or more vocational education programs, there is no uniform definition of the sequence of courses that constitute a particular program. Moreover, one course may serve several different programs, making it impossible to assign a student accurately to a particular program until the full sequence has been completed. Consequently, a count taken at a particular point in time, forces arbitrary assignment of students to particular programs, leading inevitably to inconsistencies in reporting at different points in time.

The problem can be easily illustrated. Consider students taking "Typing 1." In most high schools, Typing 1 is part of at least three different vocational education programs — Business Data Processing, Secretarial Training, and Typing and General Office (each of these has a separate four-digit CIP code). Moreover, Typing 1 is also taken by large numbers of "academic" students who are not pursuing a vocational education program at all. As there is rarely any data available on students' long range intentions, accurately assigning students enrolled in Typing 1 to a specific vocational education program is impossible.[3]

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[3] This problem is not solved by a collection strategy that asks students their intentions. Not only is such an approach very burdensome, but also it is not likely to yield accurate information. Experience with past surveys indicates large discrepancies between what students say they intend to do in their educational careers and what they actually do. Additionally, when asked what type of program they are enrolled in, there also large discrepancies between the percentage of students who say they are vocational and the percentage of students who can be classified vocational according to course data from their transcripts.

Although the problem of accurate program assignment is most severe in the business programs, difficulties also exist in other vocational program areas. Agricultural Science and Agricultural Mechanics are required courses for a variety of different agricultural programs. Health is the beginning course in most health programs. Carpentry is the first course in several different woodworking programs, and Electricity is required for electronics programs and electrician programs. In short, accurately assigning students to specific vocational programs requires historical data on the sequences of courses different students have taken. Moreover, as a program often cannot be uniquely identified until enrollment in the terminal course of the sequence, accurate assignment to a four- or six-digit program code is most accurately accomplished at the time of program completion.

Further compounding the problems of accurately reporting enrollment data was the requirement that the information be reported by race, by sex, and by special need (e.g., handicap, disadvantaged, limited English, etc.). The only accurate source of information on a student's race or ethnicity and special needs is the individual student record and transcript. However, if records and transcripts are not automated, sorting students by program by race by sex and by special need cannot be done without unreasonable effort in any but the smallest schools. Moreover, even if transcripts are maintained on computer, the need for arbitrary decisions is not avoided.

The enrollment data sought by VEDS were affected by all of these difficulties and consequently exhibited numerous problems:

- Most states could not produce accurate unduplicated counts of vocational education students enrolled by program;
- What constituted a particular program differed among LEAs, among states, and over time; consequently, enrollments by program could not be easily compared;
- Reporting by race by sex and by special need was highly inaccurate.

In short, it is not likely that accurate, comparable, detailed data on enrollment in vocational education can be collected nationwide from all providers. Nor can the problem be solved by limiting the collection to recipients of VEA funds. In part, this problem results from the lack of uniform standards on what courses constitute a particular vocational education program. However, even if uniform standards could be established (and it is by no means clear that such uniformity is either feasible or desirable — see discussion of uniform definitions below), the decision about when a particular student becomes a "vocational" student and the determination of the program in which the student is enrolled would remain arbitrary. Consequently, any attempt to collect detailed national data on vocational education enrollment using an annual census approach will continue to suffer from problems of inaccuracy, inconsistency, and lack of comparability.

Even if the definitional and identification problems could be solved, the collection of enrollment data appears to serve no major national interest. Regardless of the problems described above, a simple but fundamental question needs to be addressed: what national purpose is served by continuing to collect detailed information on vocational education enrollment on an annual basis? As a measure of the number of individuals with competencies to perform in specific occupations, enrollment in a particular program is a poor measure. Even if the definitional and identification problems could be solved, enrollment figures convey little information about the occupational competencies acquired. In this regard, program completion is a much better indicator. As a measure of programmatic activity, unduplicated counts are also inappropriate. Courses and programs differ widely in content and duration; moreover, there are important qualitative differences among different delivery systems. Although the extent of program activity is an appropriate concern of national policy, such activity is better measured by contact hours or average daily attendance than by unduplicated enrollment. Consequently, despite the longstanding emphasis on collecting unduplicated enrollments by type of vocational education program, the collection appears to serve no major national interest, for purposes of policy or accountability, even if it could be done accurately, which it cannot.

- *The classification scheme for reporting vocational education data has to be re-examined.*

Assuming the two major policy uses of detailed program data are manpower planning and improving program access, two-digit reporting, which classified vocational education programs into eight different categories, has never been very satisfactory. The distinctions are not fine enough to be useful. At the other extreme, six-digit reporting would impose a large burden on institutions, especially those without fully automated student record systems. With over four hundred six-digit codes, reporting students by race/ethnicity (six categories) and by sex, an institution would have to distribute students over more than 3,600 individual data cells. The problem is further compounded if information is sought on handicapped students by type of handicap (11 categories) and instructional setting (3 categories).[4]

Four-digit reporting would seem to offer a compromise, but with a 120 codes, the number of cells can still multiply rapidly.[5] Moreover, for some occupations, the old four-digit O.E. code fails to provide sufficient detail. For example, carpentry, electricity, masonry, and plumbing and pipefitting are all included under a single four-digit O.E. code. The new CIP code uses about 120 four-digit codes to describe vocational education, and these can be further broken down into slightly more than four hundred six-digit codes. However, CIP is far from universally implemented. VEDS sought to address this problem by collecting data on a mixture of four-digit and six-digit O.E. codes. It sought information on programs in which more than 6,000 students were enrolled nationally, programs within each state that accounted for at least one percent of occupationally specific enrollment, programs identified by BOAE (now OVAE) as having special requirements for reporting by program, and a single category to capture "all other." This resulted in 116 specific four- and six-digit codes, a total roughly equal to the number of new four-digit CIP codes. At the secondary level, however, 116 programs far exceeds the typical number of specific offerings, and the burden of program reporting remains significant.

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[4] Those accustomed to thinking of data burden in terms of the number of *variables* that must be maintained will be puzzled by the notion that the number of data *cells* poses a particular problem. After all, in this example, data for an individual student must be maintained on only five variables — program, race, sex, handicapping condition, and instructional setting. Most schools, however, do not have automated student record systems. Consequently, the typical approach to collecting data has relied on asking respondents to complete forms that must contain all possible combinations of the five variables. This leads to matrices with an enormous number of cells. The forms are difficult to complete because most of these cells will be empty for any one respondent.

[5] For example, strictly adhering to the new requirements of Section 423 for collecting data on handicapped students in vocational education produces 3,960 cells (120 programs x 11 handicapping conditions x 3 types of instructional setting = 3,960).

• *Limiting data collection to the State Plan universe does not provide the information needed for policy purposes.*

VEDS distinguished between secondary and postsecondary institutions, and at the postsecondary level, it further distinguished between regionally accredited, state approved, and other postsecondary institutions. Because VEDS limited collection to the State Plan universe, however, it did not seek data from proprietary schools or other institutions providing vocational education not included in the state plan. Furthermore, at the secondary level, it did not distinguish among programs offered in comprehensive high schools, vocational high schools, or area vocational schools.

Limiting the collection to recipients of federal funds is useful for accountability purposes only, and has no utility in and of itself for manpower planning or other policy making.

• *Procedures for following program completers and leavers must be completely redesigned to improve response rates and to increase the length of time students are followed.*

In previous chapters we have discussed in detail the problems surrounding the definition of vocational education program outcomes, and we will not repeat ourselves here. Suffice it to say that VEDS was unable to obtain good comprehensive follow-up data, encountering many problems. Among them were the following:

- Identifying program leavers was not straightforward. Transfers and temporary withdrawals (especially at the postsecondary level) made it impossible to count leavers accurately at any point in time. As a result, the data on leavers were highly suspect.
- Locating students, especially postsecondary students, after leaving or completing a program was difficult and expensive; as a result, follow-up data contained unacceptably large numbers of students whose status was unknown.
- Obtaining sufficiently high response rates from students and employers was expensive and beyond the resources of most states to accomplish on a large scale; in most states, response rates of 20 to 30 percent for students and even lower rates for employers were common, making the data unusable.
- VEDS follow-up was limited to a period of about six months following leaving or completing a program; this is too short a time to assess adequately the effects of vocational education, but follow-up for longer periods of time was too expensive to pursue on a large scale.

In short, effective large scale follow-up of leavers and completers is not possible at reasonable cost. Nor have attempts to limit follow-up to completers or to permit sampling 20 to 25 percent of LEAs per year been effective.

• *Tracing federal dollars programmatically is virtually impossible.*

Congress has asked a number of questions about the finances of vocational education. These include:

- How much state and local money is expended for vocational education?
- How much is spent on vocational education for students with special needs?

- What are the "excess costs" required to improve the access of students with special needs and for what are these costs incurred?

- What are the relative costs of different programs and different delivery systems?

- How is federal money allocated among eligible recipients?

- What do federal VEA funds buy?

Some of these questions are easier to answer than others. Although determining what is spent for vocational education may seem straightforward, it is in fact quite difficult. At the state level, most SEAs can easily keep track of the allocation of federal VEA funds to recipients, but with the exception of those few states that provide separate state funding for vocational education, most states cannot determine how much state money is spent for vocational education. State funds for vocational education are allocated as part of general assistance to LEAs, and consequently, there is no separate accounting.

Similarly, at the local level LEAs maintain accounts that distinguish revenue by source (federal, state, and local) and expenditures by object (salaries, benefits, supplies, equipment, etc.). Relatively few LEAs maintain accounts of expenditures by program. Therefore, they do not know precisely how much state and local money is spent for vocational education. Estimates can be and are made, but these are subject to considerable error and variability over time.

If it is difficult to determine how much is spent for vocational education as a whole, then it is even more difficult to determine how much is spent by type of vocational education program. VEDS sought expenditures by two-digit program code, but the information submitted was highly suspect, often estimated simply on the basis of the distribution of enrollment among the different programs. Even if this prorating were an acceptable procedure for estimating expenditures — and this is not likely — the underlying enrollment data were inaccurate and therefore could not possibly lead to accurate estimates of expenditure by program.

Even if accurate estimates of expenditures could be obtained by two-digit code, it is not clear what could be done with the information. The two-digit distinctions are too general to permit any useful analysis of differences in costs and expenditures among programs. Analysis at the four- or six-digit level, which could be useful for resource allocation policy, is simply beyond the capabilities of most LEAs and SEAs on a regular basis.

A related problem is the calculation of "excess costs" associated with providing services to students with special needs. Funds allocated under the setasides for handicapped and disadvantaged students, in both P.L. 94-482 and P.L. 98-524, are to be used to pay for not more than one-half of the funds expended above average expenditures per student for students with special needs. In practice, most LEAs have found it impossible to comply with this requirement. Not only do they not know precisely what average expenditures per student are for vocational education, but also their accounting systems are not designed to keep track of additional expenditures on certain types of students or programs. Moreover, for most LEAs, designing an accounting system that would do so is a costly and complicated task.

Finally, it should be noted that while it is easy to trace the allocation of federal VEA funds to an LEA, it is difficult to determine how federal funds alone are spent, because it is difficult to avoid commingling with state and local revenues. Even separate accounting for federal revenues does not really solve this problem because of the "substitution effect." For example, suppose federal VEA funds are used to buy computing equipment. One has no way of knowing whether, in the absence of federal funds, the local recipient would have bought the computing equipment with state and local dollars. If the recipient would have used state and local dollars and simply substituted federal dollars for a purchase that would have been made anyway, then the federal dollars did not enable the purchase of the computing equipment but rather enabled the purchase of whatever was bought with the state and local dollars that otherwise would have been spent on computing equipment. Sorting out these substitution effects and establishing a direct causal link between the receipt of federal funds and expenditure for a particular purpose is very difficult. Therefore, attempting to isolate the effects of federal expenditures has not yielded useful information.

- *It is not feasible to collect staffing data by program on an annual basis.*

VEDS initially sought to collect staffing assignments to vocational education programs by race by sex, but subsequently suspended the staff report. Many of the same problems that arise with identifying a vocational education student arise with identifying vocational education staff. In most LEAs, both secondary and postsecondary, personnel are assigned to departments and teach courses, not vocational education programs. Many staff teach courses that are taken by both vocational and non-vocational students. Consequently, allocating their time is problematic and subject to confusion and error.

Despite these problems, the collection of staff data has many attractive features if it could be done accurately. First, as a measure of activity and resources in vocational education, staffing FTE is a much better indicator than student enrollment or program completers. With good information on expenditures by program unavailable, staffing FTE probably provides the second best indicator of expenditures by program. Moreover, there are far fewer staff than students, which presumably should make the data easier to collect. Second, data on staffing characteristics could provide some good indicators of differences in program quality — between vocational education and other education programs, as well as among different vocational education programs and different delivery systems. To be useful, however, such data would need to be rather detailed, making it infeasible to collect on an annual basis

- *The search for uniform definitions may be a hopeless quest.*

To some extent, the many problems confounding the collection of accurate data on vocational education come down to this: the 50 states and the 10,000 or so LEAs and postsecondary institutions (PSIs) with vocational education programs all do things differently. Courses have different titles and are taught for different amounts of time. Course content varies, and the sequence of courses that make up a particular program differs among LEAs, PSIs, and states. Requirements for program completion also vary, as do procedures for program approval and teacher certification. States do not all use the same procedures for defining and identifying disadvantaged students and others with special needs. Although The Education for All Handicapped Children Act (P.L. 94-142) has established definitions of handicapped children that are routinely used by most secondary schools, postsecondary institutions use different definitions, and many do not systematically identify handicapped students at all.

Amidst such chaos, it is tempting to believe that many of the data problems could be solved by universally adopting uniform definitions, and, indeed, both P.L. 94-482 and P.L. 98-524 have required the use of uniform definitions in national vocational education data systems. It is important to understand why — with the possible exception of defining students with special needs — uniform, specific, operational definitions are not likely to improve our understanding of the vocational education enterprise.

In large measure, vocational education programs are effective only to the extent that they are designed to meet local and regional labor market needs. As these needs vary, depending on local technology and the degree of local labor market specialization, programs often will be effective only if they are ***not uniform*** in content or in the specification of competencies required to fill an entry level position. As we noted in Chapter Four, an automotive program designed to train students to work in rural areas may stress a broader range of general skills, using less costly and technically sophisticated equipment, while an automotive program in a major city may stress greater specialization on more complex diagnostic and repair equipment. Imposing uniform standards for program content or program completion could easily produce the result that students in neither area would be effectively trained to enter the kinds of jobs most immediately available to them.

Similar problems can arise in efforts to define uniformly students with special needs. For example, uniform income criteria for defining economically disadvantaged students will lead to understating the numbers of disadvantaged students in areas where the cost of living is high and overstating the numbers in areas where the cost of living is low. Attempting to design uniform procedures for adjusting definitions for cost of living differences is likely to encounter many difficulties.

Leaving states and LEAs to their own devices, however, raises other kinds of problems. Without any direction, states may be tempted to define special needs criteria as generally as possible to permit spreading restricted funds over as many students and LEAs as possible.

A NEW STRATEGY FOR COLLECTING VOCATIONAL EDUCATION DATA

Keeping in mind the information needs for both accountability and policy and the problems encountered in using VEDS to try to meet them, we propose a new approach to collecting vocational education data. In place of VEDS, we propose two types of data collection:

- periodic surveys of small national samples of students and institutions;
- an annual or biennial universal census collecting a *limited* amount of data.

Periodic Sample Surveys

Much of the data required for policy purposes can be obtained accurately only by collecting historical data on students' course taking patterns and on their status following program completion or leaving. Such longitudinal studies can avoid many of the problems VEDS encountered in attempting to collect vocational education data. Because they develop a history of courses taken by each student in the sample, students may be accurately and consistently assigned to the proper vocational education program. Accurate unduplicated counts of students enrolled in vocational education during the year may be obtained, and patterns of program leaving and completion may be carefully examined. The studies generate excellent follow-up data on employment and other program outcomes, and these data are collected over a period of at least four years, allowing reliable comparisons between students enrolled in vocational education programs and those who are not. The data also permit analysts to control statistically for a number of variables that may affect patterns of program enrollment and program outcomes — e.g., race, sex, special need, parental and family characteristics, school characteristics, etc.

In addition to producing much more accurate and reliable data than the approach used by VEDS, longitudinal studies are much less burdensome. The collection is limited to a sample of schools and students, and the responsibility for collecting the data is assumed by a federal contractor rather than the schools and state agencies.

The logical vehicle for collecting this kind of information is the longitudinal studies already being conducted by the National Center for Education Statistics. NCES has previously conducted two longitudinal studies, the National Longitudinal Study (NLS-72) and High School and Beyond (HS&B), which have yielded extensive information on vocational education. For NLS-72, base-year data were collected on a cohort of high school seniors in 1972. Since then, that cohort has been followed up four times. Postsecondary transcripts were collected in 1984, and a fifth follow-up is scheduled for 1986. For HS&B, base-year data on a cohort of sophomores and a cohort of seniors were collected in 1980. Two follow-up data collections have already occurred, and two more are scheduled, one in 1986 and another in 1990. Additionally, postsecondary transcripts were collected for the senior cohort in 1984 and will be collected for the sophomore cohort in 1986. Both NLS-72 and HS&B provide a rich source of existing, usable data for analyzing such topics as the number of students taking vocational education courses, patterns of course taking throughout students' educational careers, patterns of program completion and leaving, and a variety of program outcomes (employment history, patterns of further education and training, earnings, etc.).

A third longitudinal study, the National Education Longitudinal Study (NELS), is slated to begin with a secondary cohort and a postsecondary cohort in spring 1988. At least two follow-up collections are planned, one in 1990 and another in 1992. NELS can easily be modified to collect more detailed data on vocational education, including students, types of delivery systems (e.g., comprehensive high schools, vocational high schools, and area vocational schools), staff, and facilities.

Despite their power to generate good data on vocational education, these longitudinal studies have a number of limitations. First, they are able to generate geographically specific data for only the nine U.S. Census Divisions and about eight states. States are encouraged to augment the sample, at their own expense, to generate state-specific data, and several have chosen to so in the past two collections. However, augmentation is most costly in the smallest states, which usually are the least able to afford it. Second, the sample of students is not large enough to obtain a great deal of detail by type of vocational education program. Typically, 15 to 25 of the largest vocational education programs can be differentiated, but this is far short of the 120 four-digit and 400 plus six-digit CIP classifications for vocational education. Third, the sample size is not large enough to permit analysis of program partricipation by special education students, nor is it possible to oversample special education students at reasonable cost. Fourth, there is a six to eight year lapse between the selection of new cohorts, so that the data are not always as timely as one would like.

This lack of geographic specificity, program detail, special education data, and ongoing timeliness limits the usefulness of the longitudinal studies for purposes of manpower planning, especially at the state and local level. It also limits their usefulness for detailed and timely examinations of program access by race, sex, and special need. Consequently, the data collected through the longitudinal studies need to be supplemented with data on program completers and, if necessary, program enrollment collected more frequently as part of an annual or biennial universal census.

Annual or Biennial Universal Census

The census should concentrate on collecting data on program completers. All providers of vocational education should be surveyed and asked to report the number of program completers by race, sex, and handicapping condition by type of vocational education program.

In our model for performance-based evaluation we defined program completers as those students "satisfying the requirements for a degree, certificate, diploma, or other formal award *and* completing a vocational education program that certifies that the student has acquired the general and job-specific skills necessary to perform effectively an entry level job in an occupation related to the student's training." We would leave states and LEAs free to use their own discretion as to how to operationalize this general definition, based on differences in local labor market conditions and approach to curriculum. These procedures, however, should be subject to review.

At the secondary level, probably 40 to 60 different program categories would provide sufficient programmatic detail, although this issue would benefit from more thorough study. To some extent, the problem of reporting with a high degree of program specificity is a problem of instrument design and collection strategy. While it is true that, at the level of six-digit detail, there may be several hundred different vocational education programs within a state, a specific institution typically offers no more than a dozen six-digit programs, and most of the LEAs offer no more than thirty. Consequently, if the program data could be collected and transmitted by institution or LEA, it would be possible to use survey instruments that permit respondents to list only programs relevant to them. After the initial data collection, subsequent surveys could employ a "shuttle form" with the respondent's programs from the preceding survey preprinted. The respondent would need only to note changes. For such a strategy to work, however, the underlying classification system (CIP) must be sound and employed universally. Otherwise various types of translation procedures ("crosswalks") must be used to standardize program offerings, introducing increased potential for error.

For manpower planning, and for other policy purposes, it is clear that completion data are needed from all institutions providing vocational education, regardless of whether or not they receive VEA funds. Moreover, given the rather large qualitative differences that exist among programs depending upon whether they are offered in comprehensive high schools, vocational high schools, area vocational schools, vocational-technical institutes, private proprietary schools, and other postsecondary institutions, it would be useful to have completion data reported separately for these different institutional types. Furthermore, within the public sector offerings, it would be useful to have program completion data reported by race, sex, and special need for these different institutional types. As proprietary schools not receiving federal funds are beyond the reach of federal policy on access issues, it may prove impossible to obtain data on race, sex, and special need for these institutions.

Making these kinds of distinctions among different types of vocational education providers would be most easily accomplished if the data were collected and transmitted to the federal level by institution or LEA. Disaggregated data would also facilitate error checking. However, reporting data disaggregated by institute or LEA poses two major problems. First, processing and editing disaggregated data are formidable tasks, requiring substantial resources for the federal agency with the responsibliity for these tasks. Second, at the secondary level, there has been stiff resistance by many states to routinely reporting large amounts of data below the state level. For these reasons, VEDS relied, without success, on the states to perform the necessary error checking and editing. Reduced data burden would probably reduce resistance to disaggregated reporting, but some states object simply on general principle, expressing the view that the federal government has neither the need for nor the right to local data.

In our view, this census should be limited to collecting data on program completers. Using data from the longitudinal studies, it is possible to develop algorithms for estimating vocational education enrollment. However, political pressure for directly collecting some enrollment data is likely to continue to be strong. If so, we recommend limiting the collection of enrollment data to four general categories of vocational education:

- Industrial Arts;

- Consumer and Homemaking;

- Other Occupationally Specific Vocational Education Programs in Grades 11 and above;

- Other Occupationally Oriented Vocational Education Programs;

At the secondary level, it is unlikely that much duplicated enrollment would occur *within* any one of these four categories — i.e., it is unlikely that a student would be taking two industrial arts courses simultaneously. However, there would probably be significant duplication *among* the four categories — i.e., it is possible that some students would be taking a course in consumer and homemaking and a course in business simultaneously.

Duplication among these categories, however, does not constitute a serious problem. Just as it is useful to know how many students are enrolled in math, science, English, and foreign language courses in a given year, it is useful to know how many students are enrolled in each of these four types of vocational offerings. Just as it would be inappropriate to add together the number of students enrolled in math, science, and English, it would be inappropriate to add together students enrolled in these four categories of vocational education. The longitudinal studies, not the universal census, will be the appropriate source of information on the unduplicated count of students served by vocational education.

At the postsecondary level, the potential for duplication within categories 3 and 4 is much greater, *as long as there are a substantial number of institutions without automated student record systems capable of routinely unduplicating enrollment.*[6] Consequently, at the postsecondary level, it may be advisable to seek data on contact hours, which is a superior measure of program activity and a measure with which postsecondary institutions are more familiar than secondary institutions.[7]

Whatever the merits of collecting this kind of general enrollment data in addition to completers, collecting *detailed* enrollment data is clearly unnecessary. The completion data collected from the universal census, in combination with completion and enrollment data from the longitudinal studies, can be used to develop algorithms that can be used to generate acceptable estimates of program enrollment by race, sex, and handicapping condition. The assignment of a program completer to a particular vocational program is unambiguous, while the assignment of student enrolled in a particular course to a specific program can be highly arbitrary and subject to considerable inconsistency. Hence, the error resulting from using completion-based algorithms to estimate program enrollment characteristics will be substantially less than the error that will result from attempting to develop program characteristics directly from course enrollment. On this point, the evidence from past experience with VEDS data is overwhelming.

This emphasis on program completion is not merely a matter of methodological convenience. Concentrating on obtaining detail on completers is conceptually superior to an approach that seeks to develop detail on enrollment. The critical fact for policy making — whether it is concerned with labor market planning or with the distribution of marketable skills by race, sex, and special need — is the number of students prepared to obtain and hold entry level positions in jobs related to their training, which is, by our definition, the number of students completing a particular program. Mere enrollment in a program tells policy makers very little about the likelihood of employment or the effectiveness of efforts to ensure that the acquisition of marketable skills is free of bias by race, sex, and special need. In short, completion provides a critical measure of program performance and is the indicator that needs to be reported as accurately and consistently as possible.

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[6] Most postsecondary institutions appear to have the capability to unduplicate counts of students within program categories; however, whether the number lacking such capability is sufficiently large to distort national reporting is unknown and needs further investigation.

[7] Moreover, at the secondary level there is a much closer correspondence between enrollment and contact hours in any one of the four categories, because students are unlikely to be taking more than one course in any of the categories at any one time.

DATA ON HANDICAPPED STUDENTS

Section 423 of the Carl Perkins Vocational Education Act requires collecting data on secondary handicapped students enrolled in vocational education. Specifically, Section 423 states:

> The Secretary shall assure that adequate information on the access to vocational education programs by handicapped secondary school students be included in the national vocational education data system, required by section 161 of the Vocational Education Act of 1963 and by this part, for the biennial survey. The information base for the biennial survey for the handicapped shall be in 4-digit detail as defined in A Classification of Instructional Programs published by the National Center for Education Statistics. The survey shall include information with respect to total handicapped enrollment by program, by type of instructional setting, and by type of handicapping condition.

This section has two primary objectives: 1) obtaining reasonably accurate information on the status of handicapped students in vocational education and 2) improving communication between special educators and vocational educators to ensure that vocational education serves handicapped students effectively.

The approach developed above to collect annual, universal data on program completers and, if necessary, enrollment meets both of these aims. Completer data would be reported by handicapping condition, and if enrollment datas is collected, providers could be asked to report the number of handicapped students by instructional setting.[8] Algorithms could be used to estimate handicapped and non-handicapped enrollment in the forty to sixty program areas.

Such an approach should produce more accurate estimates of enrollment by program than would be achieved by attempting to collect enrollment data directly. Accurately assigning handicapped students to specific programs is as difficult as assigning non-handicapped students, perhaps more so because handicapped students are often more likely to be enrolled in less advanced, introductory courses that are not uniquely identified with a four-digit CIP code. In addition to greater accuracy in counts of handicapped students enrolled in vocational education, this approach has the advantage of generating valuable information on completers by handicapping condition, a data request that would be difficult to justify if the information on handicapping condition were requested for enrollment.

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[8] Because a student completing a program may have taken courses in a variety of instructional settings over the sequence of courses required for completion, it is not feasible to attempt to collect information on instructional setting for completers.

SPECIAL STUDIES

With longitudinal sample surveys collecting the detailed information on program enrollments and program outcomes and with a universal census collecting data on program completers, the major data requirements for policy purposes can be satsifed, with one important exception — finance. In our view, a thorough review of vocational education finances needs to be done only once in each reauthorization cycle, and we recommend that this become a special study. The Office of Vocational and Adult Education undoubtedly will need some annual accounting of federal funds, including allocations by states to eligible recipients. While such information is necessary for accountability, it has little usefulness for policy. It cannot produce a complete picture of vocational education spending because the reporting requirements will apply only to recipients of federal funds. A special study would address this larger policy concern.

In addition to finance, there are other important topics that special studies could address. We need a better understanding of how states define and identify handicapped, disadvantaged, limited-English, and other special populations. Additionally, identifying and analyzing exemplary programs serving special populations would be useful.

Another important concern is improving our knowledge of how vocational programs differ among different delivery systems — i.e., comprehensive high schools, vocational high schools, area vocational schools, community colleges, other postsecondary institutions, and proprietary schools. There is growing concern about the relative quality of vocational education programs in comprehensive high schools. While many, including ourselves, have expressed the view that programs are generally superior in vocational high schools and area vocational schools, these views are based mainly on personal observations rather than systematic study of the issue.

Facilities are another topic suitable for special study. Many states have used VEA funds for construction of new facilities, especially area vocational schools and vocational-technical institutes, and Congress continues to be concerned about the quality of buildings and equipment and about the geographic location and accessibility of facilites. As demonstrated by a survey conducted for the Department of Education by Westat in 1978, determining the location of vocational education facilities by type (comprehensive high school, vocational high school, area vocational school, community college, and so on) is straightforward and can yield some useful general information about accessibility. Collecting good data on the quality of equipment and facilities, however, remains highly problematic.

In conclusion, we believe the recommendations proposed here would greatly improve the quality of vocational education data at the federal level. Moreover, they are consistent with our permissive planning model that focuses policy planning and evaluation on measures of program peformance. However, both permissive planning and the procedures recommended for improving planning information represent a major departure from past practices. What are some of the problems that can be expected if they were implemented? To find out, we conducted several site visits to local secondary and postsecondary districts with vocational education offerings. Their reactions are the subject of the next chapter.

CHAPTER SIX

THE LOCAL PERSPECTIVE

Local cooperation is critical to the success of permissive planning. Unless local vocational educators understand and accept the methodology, criteria, and measures used to evaluate their programs, the information they provide to the state and federal governments is likely to be of such low quality that it will be impossible to evaluate the programs meaningfully. To help avoid this problem, we made a significant effort to solicit the local perspective during the early stages of our efforts to design a sensible approach to performance-based evaluation.

To do this, we made one-day site visits to five secondary and six postsecondary (community college) districts in northern California to discuss evaluation in general and our proposed approach in particular. These districts were chosen randomly from a sample stratifed by geographic location, subject to the constraint that a selected district be no more than 150 miles from the San Francisco Bay Area in order to minimze travel costs. We had two main objectives: first, to determine what kinds of evaluation systems, criteria, and specific measures are acceptable to local administrators and teachers; and second, to develop some preliminary conclusions about how implementation of the type of evaluation system we are proposing should proceed.

At the eleven districts visited we interviewed a total of 16 directors or deans of vocational education and 18 teachers. To obtain as broad a range of perspectives as possible, the sample included both large and small urban, suburban, and rural districts.

It should be stressed that we visited these districts early on in the project and that we went to them with a full-blown model of performance-based evaluation, similar to that described in the Appendix to Chapter Four. We had not yet settled on a completion-based system for annual evaluation. Indeed, our decision to opt for a more simple approach reflects much of what we learned through the site visits. Hence, the comments described here reflect respondents reactions to a more complicated system of evaluation than that recommended in Chapter Four. Nevertheless, the responses are quite useful in understanding the limits on state and federal evaluation if local cooperation is to be secured.

At the start of each interview we explained that we were trying to develop a new approach to state and federal evaluation that would hold local administrators accountable for the outcomes of vocational education, and presented this as an alternative to the current practice of focussing on inputs or processes. We emphasized that the overall aim of this approach was to give local administrators more flexibility in designing and operating vocational education programs so that they could respond to the needs of their communities. We then described the evaluation model in terms that were as non-technical as possible. The remainder of the interview was devoted to discussing the model and eliciting the local perspective on both what we are proposing as an overall approach, and also on specific criteria and measures for evaluating vocational education programs.

The interviews revealed clearly that while there is general agreement on the overall criteria upon which vocational education programs should be evaluated, there is no consensus on how evaluation should be conducted or on what specific measures should be used. We discovered a wide range of opinions not only among but also within institutions. What follows is a summary of the various perspectives presented to us by local administrators and teachers. Where appropriate, we have pointed out the implications of these views for implementation of a state and federal evaluation system.

REACTION TO THE MODEL

The reactions to the model varied greatly, ranging from strong support to outright rejection of both the model and the very notion of state and federal evaluation of locally administered programs. In this section we summarize the various viewpoints, who held them, and why.

Support for the model came from vocational educators who shared the belief that there exists a definite need for a simple, effective tool for assessing program outcomes. They took the position that vocational education programs should impart specific skills to students to prepare them for entry-level positions, believed that it was legitimate to develop measures to hold vocational educators accountable for doing so, and acknowledged that it is not now being done adequately.

The supporters of the model were most disposed to favor it for programs governed by industry standards or preparing students to obtain statewide licenses or certificates, such as the health-related programs. In these types of programs, the curricula are necessarily similar from one institution to another, and there is general agreement on what needs to be taught. As a result, it was not hard for many to accept the idea of comparing the relative effectiveness of these programs. On the other hand, even the most enthusiastic supporters of the model were considerably less sanguine about its possibilities for evaluating programs such as merchandising or food management where the program content varies greatly, and where there is disagreement among those in the field over what students should be taught. This strongly suggests that any attempt to implement a full blown model of evaluation, especially one concentrating on employment outcomes, should start with programs with industry standards, and only when acceptance of the model for these programs has been achieved should the more diverse programs be tackled.

While some of those interviewed had philosophical reasons for supporting the model, others had more pragmatic ones. Vocational education, particularly in the comprehensive high school, is often seen as the underdog compared to the academic program, and some vocational educators saw the model as a potential tool to help them at the bargaining table at resource allocation time. A number of teachers and administrators complained that it was impossible to run a first-rate program without up-to-date equipment, but that they faced constant uphill battles to get what they needed. Some felt that if there were specific standards that programs had to meet it would be easier to obtain adequate funds.

Getting sufficient resources to do a good job has been a special problem for programs in areas with rapidly changing technologies. For example, one auto teacher pointed out that many of the diagnostic tools used in auto shops now are computerized. They are very expensive, but unless programs have them, they cannot produce job-ready students. If there were statewide standards requiring that auto programs have certain equipment, the institutions would be more easily persuaded to allocate funds for it. (This could backfire on the teacher, however. The institution might decide the program was not worth it and close it down entirely. Even if this were a wise decision, it certainly would not please the auto teacher, who would probably immediately become an ardent foe of state standards.)

The view that standards would help raise the prestige of vocational education aid attempt to obtain more resources was most commonly found among high school administrators, but there were also some community college administrators who felt that vocational education was given a lower priority in their institutions than academic programs. One college administrator complained that deans in academic areas were always trying to find ways to get vocational education dollars redirected. He was therefore grateful for federal requirements that limited their ability to succeed, and would support standards that helped accomplish the same end. Other community college administrators, however, felt no such threat. It appears, therefore, that the strongest support for program standards and evaluation may come from institutions in which vocational education programs feel the most vulnerable to attack or to loss of resources.

Objections to the model, as in the case of support of the model, were sometimes philosophical and sometimes pragmatic. A number of administrators, particularly at the community colleges, were hostile to the very notion of state and federal evaluation on the grounds that it violates the principle of local autonomy. They did not believe outside evaluation of program effectiveness to be legitimate or necessary, insisting instead that evaluation should be left to teachers, advisory committees, or local administrators. Many times we were told that it is the responsiblity of the local institution, not the state or the federal government, to decide whether or not a program is doing well. To those holding this view, a local institution needs to be accountable only to its community, not to any higher level of government, for the quality of its programs.

In part, many of those objecting to the model did so on the fear (justified) that it might lead to the cutting back, or even elimination of some programs — that is, that programs that scored poorly would be pressured or forced by the state to contract or close down. This was seen to be in direct conflict not only with the right of local institutions to decide what to offer, but with the students' rights to study in their own communities.

This refusal on the part of some to accept the legitimacy of state and federal evaluation of local programs would no doubt cause serious problems if a complicated model of program evaluation were instituted on a universal annual basis. Local administrators could easily sabotage the model by providing inaccurate data (as one of the administrators interviewed freely admitted to doing right now in meeting federal reporting requirements). Although it is difficult to know how widespread the opposition to state and federal evaluation is, we can be sure that there will be opponents to any evaluation system proposed. In implementing any evaluation system, then, attention must be paid to how reluctant participants can be persuaded to provide timely, accurate data despite their opposition. A variety of strategies are available to do this, including involving local personnel at the planning stages, allowing local options (such as the format for transmitting data) wherever feasible, providing generous technical assistance, and devoting serious attention to developing as many "side benefits" as possible so that the information generated for the state is also useful at the local level. Above all, the reporting burden must be minimized.

In addition to those who enthusiastically supported the model and those who were unalterably opposed to it were a number of administrators and teachers (probably the majority) who accepted the legitimacy of state and federal evaluation, but had various practical concerns about the model we were proposing. One major concern was the amount of work they expected it to involve on their parts. Vocational education administrators tended to feel already burdened with evaluation requirements and were reluctant to appear supportive of anything that would add to their workload. Community college administrators pointed out that in addition to collecting data for VEDS (a requirement for secondary districts as well but temporarily suspended), they must also meet the requirements of COPES (a time-consuming evaluation of one fourth of all vocational education programs each year) and SAM (a student accounting system for identifying vocational education students). The follow-up of completers and leavers required by VEDS for both secondary and postsecondary institutions is seen as still another a considerable burden.

Those opposing additional work did not necessarily rule out the model altogether. One administrator interviewed said he would be willing to adopt our approach if all the other requirements were dropped. Another indicated a willingness to accept program evaluation if it were part of the accreditation process. Another, resenting the emphasis on evaluation in vocational education compared to other programs, suggested that he might be more amenable to the type of evaluation we were proposing if academic programs were subjected to the same scrutiny.

Another major practical concern raised in the interviews was the feasibility of making fair comparisons among programs with the same titles but with very different curricula. In practice, this problem would be much more serious in some areas than others. For example, in programs where there is state licensing, comparisons would be relatively easily to make because the programs are designed to ensure that their students pass these examinations and therefore have similar curricula. In other programs, such as agriculture, merchandising, or office work, what is taught is more dependent on the needs of the local economy than on a state standard, and this makes comparisons more difficult. This is a valid concern, and a difficult problem to solve. It is more easily discussed, however, in the context of specific outcome measures and therefore will be returned to below.

Another aspect of the concern about the feasibility of making comparisons concerned taking into account the fact that some programs have more resources, better equipment, and students who are easier to teach. While our model does try to take into account at least some of these contextual factors, some of those interviewed remained skeptical that our efforts could capture all of the important ones in a quantitative manner.

Finally, some administrators were concerned about possible misinterpretation of results. This is not an unreasonable concern. All too often the qualifications are not carefully presented or read when quantitative results are reported. This is a matter that has to be given serious attention by those responsible for administering the evaluation system, but in and of itself is no reason to abandon evaluation.

While we have to be very careful about making generalizations because of the relatively small number interviewed, the secondary district vocational education administrators were, on the whole, the most positive about the potential of the model, the community college administrators the most negative, and the teachers relatively indifferent. This is not particularly surprising. With as many as three quarters of the students enrolled in at least one vocational education course, vocational education is in a relatively strong position in the community colleges. As a result, community college administrators were much less likely than high school administrators to need the model as a way of helping them out of an "underdog" position. In addition, local autonomy is a particularly sensitive issue in California's community colleges. The increasing centralization of decision-making at the state level in recent years has made many community college administrators extremely wary of new proposals likely to lead to further state involvement. Local autonomy is highly valued and guarded wherever possible. In the secondary districts, these feelings do not appear to be as strong, possibly because there is a longer tradition of state involvement in school management issues.

Reaction to Specific Outcome Measures

Despite the variety of opinions on the model and on state and federal evaluation in general, none of those interviewed disagreed with the criteria we suggested for evaluating vocational education programs. While they might differ among themselves on how they would prioritize them, all seemed to accept employment, employability, education, and access as legitimate and important outcomes of vocational education programs. What follows is a summary of their views on the appropriateness and feasibility of various outcome measures.

1. *Employment Outcomes*

There was general agreement on what constituted an "employment" outcome: placement in a job using the vocational training the student received. Some teachers and administrators felt that any employment would meet this criterion, but some opposed counting unskilled jobs such as working in fast food establishments. Still others expressed the opinion that simply being hired for a job was not enough, that demonstration of ability to hold a job was more indicative of a successful outcome. Those holding this position, however, were quick to point out that the reason for leaving a job was important. While they were willing to be held accountable for students being able to keep jobs, they wanted to make sure that they were not held accountable when a student left for personal reasons.

Despite these qualifications, no one disputed the importance of placement. Placement seems generally accepted as the "bottom line" in vocational education. In other words, for a program to be successful, students have to get jobs. The community college administrators seemed to be relatively satisfied with using placement as the major criterion for evaluating vocational education programs. Most seemed to believe that if economic conditions were favorable and they could not place their completers, something was seriously wrong with the program.

The high school administrators, while acknowledging the importance of placement, were somewhat less willing to accept it as the primary indicator of success. We were often reminded that vocational education at the high school level has important goals other than job placement, and that often students try out occupations and then decide they are not suited for them. Meanwhile, they have acquired basic educational and general work skills that will serve them well no matter what they decide to do. Vocational educators consider this a successful outcome even though there was no placement in a field related to the student's specific training. They did agree, however, that if there are not jobs in an area they should not be offering training for that occupation.

The major difficulties respondents had with using placement to evaluate vocational education programs were not philosophical, but practical. Some maintained that placement alone does not give enough information to evaluate the intrinsic merits of a program or to compare it to others. As many of those interviewed for this study reminded us, placement depends on factors other than the quality of the program, such as the characteristics of the student and the prevailing economic conditions. Unless these are taken into account, comparisons are unfair and can lead to undesirable practices such as "skimming." One administrator admitted that the demand that a particular JTPA program produce an 80 percent placement rate had caused them to raise entry requirements to make sure that they admitted students likely to succeed. This was achieved at the expense of access of students with special needs to the program.

Additionally, many of those interviewed stated repeatedly that collecting good follow-up data is expensive. Ideally, follow-up data should yield information not only on immediate placement in a job, but also on wages, advancement, stability of employment, and employer assessment of the employee's skills. This requires long term follow-up, important, but much too expensive to do on a regular basis at the local level.

Even the more modest goal of contacting students once after they have had time to get jobs is expensive and not very cost effective. One administrator reported spending $2,300 for printing, mailing, and tabulating the returns from 3,000 forms. In spite of this investment, a response rate of only 20 percent was obtained for the first mailing. A second mailing brought it up to only 33 percent, far below the level considered necessary by survey researchers to draw valid conclusions. In other words, the $2,300 was simply wasted.

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This experience appears to be common. The response rate statewide to the follow-up surveys sent out to meet VEDS requirements in 1981-82 was only 27 percent in the community colleges. While much higher in the secondary districts, the secondary response rate of 69 percent was just barely adequate for making statistical estimates with any confidence. Employer surveys to evaluate the quality of the training of their employees have been even less successful. All those inteviewed said that is has been hard to get former students to identify their employers, to get employers to respond, and to compare the data received from different employers.

In sum, while the administrators and teachers interviewed regarded employment outcomes as important measures of program sucess, not one of the institutions visited actually had follow-up data that were of sufficiently high quality to use to evaluate programs in a systematic way, nor did they have plans to try to obtain such data. Instead, they expected to continue to rely on informal information from students and local employers. While they did not suggest that this was equivalent to systematic surveys, many felt that it did enable them to get a good idea of how their former students were faring, and thus, indirectly, the quality of their programs.

2. *Educational Outcomes*

There was a complete consensus among those interviewed that vocational education programs should include instruction in basic academic subjects, even at the remedial level if necessary. One administrator expressed the opinion that educational outcomes were as important as job-specific skills. She pointed out that reading and math skills are very important for employment, and that employers often requested "students with basic skills" rather than students with specific job skills. She was also of the somewhat pessimistic view that vocational education programs were never going to have "state of the art" equipment in high tech occupational programs, which meant that employers were always going to have to train students. The implication of this, she felt, was that basic educational skills would be what the students had to offer.

Despite the acceptance of the importance of basic academic skills, there was no agreement on how they should be taught. Some thought they should be integrated into occupational training, while others felt that they should be taught in separate departments, especially in the case of remedial programs. It was argued that it takes special skills and training to teach remedial programs and that many vocational education teachers felt inadequate to the task. Others felt that students learned best if academic subjects were part of their vocational courses.

One concern raised in the interviews was that students start at very different levels of academic competency when entering a program, making it difficult to compare programs in terms of either absolute skill levels or change in skill levels. A student entering a vocational program at a community college with a B.A., for example, would probably not show any significant improvement in reading level during the time spent in the program. Such a student would, however, be able to satisfy reading competencies required for completing the program, although it would not be the program *per se* that was responsible for achieving this accomplishment.

When asked for opinions on how educational achievement should be measured, some of those interviewed were amenable to the use of standardized tests administered pre and post program, while others felt that a final exam or program-related test would be fine. A few thought it unnecessary to test achievement separately in academic areas to evaluate vocational education programs.

3. *Employability Outcomes*

Employability was a major focus of discussion in the interviews, and there was more controversy over this aspect of vocational education outcomes than any of the others. Everyone thought that employability was important, but not everyone agreed that it needed to be considered separately from employment. Some argued that if a person is employable, he or she should be able to find a job, and if a person finds a job, he or she is obviously employable. A study of placement rates should, then, capture the effectiveness of programs in improving students' employability.

The community college educators were less inclined to believe that it is necessary to measure employability separately. This was not surprising given their general satisfaction with placement as a criterion for evaluating programs. The administrators and teachers in programs with very high placement rates were also less likely to be concerned about treating employability separately. Obviously, if they place all of their graduates, as some do, then the need to prove employability is not critical.

High school administrators tended to be more enthusiastic about making an effort to separate employability from employment. A number of them pointed out that students often choose careers other than the one trained for, but that they still learn something valuable while in the program, even if they eventually drop out or switch to something else before completion. The administrators would like to see this counted as a successful outcome.

Among those who favored a separate treatment for employability, there was still disagreement on how to define and measure it. With respect defining employability, what was at issue was whether or not it is possible to describe what makes a person employable. The general opinion seemed to be yes, where there are industry standards, but no for other areas. It was commonly believed that for many occupations a group of professionals would disagree as to what the standard practices and skills needed for a particular industry are, especially for occupations where there is a great deal of variety in equipment (word processing, for example) or organizational processes (merchandising, for example). A number of those interviewed stated, quite simply, that "it just can't be done."

It was interesting, however, that there was little objection to the use of standards in fields already regulated by the state. The concern centered on the possibility of being forced to accept statewide standards that would not reflect what was currently being taught. It was feared that this would lead to a narrowing of the curriculums and too much "teaching to the test." The fact that no concern was expressed about either narrow curricula or teaching to the test in programs that have state standards now suggests that the real concern is not standards per se, but the threat to local autonomy implied by statewide standards for all occupations. If standards could be set locally, vocational educators might be much more willing to consider their use.

Several teachers did, in fact, express a willingness to be held accountable for standards set locally. They felt that setting standards and expectations for each program was an integral part of good teaching and that it was reasonable and fair to hold teachers accountable for meeting them (assuming the types of students enrolled and the resources available are taken into account.)

With respect to measuring employability, many of those interviewed were at a loss to suggest a methodology. Of those who did have ideas, some favored informal methods, such as talking to teachers or advisory committees that included local employers. A number of administrators, in rural areas particularly, favored the latter approach. They felt that they had good contacts with local employers, and were confident that if their programs were not producing employable students they would hear about it. Others relied on indirect indicators such as student demand or the number of employers coming to campus to interview prospective employees.

In short, administrators felt that they were on top of the situation at their institutions and knew what the good programs were through informal evaluation methods. This may be true, but this attitude points out the difference between the perspectives adopted by state and local administrators. These informal methods do not allow systematic comparison of programs among institutions. While they do provide valuable information that should be integrated into the overall evaluation system, alone they are not sufficient.

A number of community college administrators mentioned accreditation processes as a way of gaining information on the quality of programs and thus the employability of their students. All colleges are accredited every five years, and some programs are accredited individually. Most nursing and other health science programs are accredited, for example. This accreditation is voluntary, and is carried out by state officials or professional associations, usually in fields where there is a state licensing test. The accreditation of a program includes a thorough self-study and a visit from a team of outside professionals. The review lasts about three days. To become accredited, schools must fulfill certain requirements regarding equipment, teacher-student ratio, curriculum offerings, and so on. Some administrators felt that this thorough, unbiased review by outside professionals was a valuable way to evaluate programs and thus the employability of their students. One administrator commented that she preferred this type of review to advisory committee reviews because members of the advisory committee are often friends of the instructors and because advisory committees rarely spend much time actually observing the programs.

We suggested, as an alternative to these methods of assessing employability, the administration of competency tests to determine whether or not students have mastered specific skills necessary to obtain jobs related to their training. As might be expected, we found both proponents and opponents of such a system, and many of the proponents qualified their support.

Those who accepted the idea of standards for vocational education programs liked the idea of competency tests. They did, however, have different ideas about how they should be used and what they should cover. Some thought that the competencies should be simple and relatively easy to achieve, while others preferred that they be more detailed and difficult. Some instructors felt that the state licenses in brakes and headlights and in emission control were valuable tools for assessing students' skill levels. Other instructors, however, saw these tests as a bare minimum that did not reflect the skill levels they wanted their students to obtain. One auto mechanics teacher said that 85 percent of his students could pass the state license test after only a short time in his program, but that they would not be ready to work in a shop that soon.

A similar reaction was found in the health field, where most students pass the state licensing tests on the first attempt. Some perceived the tests as valuable tools for assessing perfomance, but a number of others said the skill levels were too low to be meaningful. They pointed out that, with over ninety percent passing the test, the results would be of limited utility for making comparisons among programs in different institutions.

The question of whether to adopt minimum competencies or to design a multi-level system of competencies is an important one. Some of those interviewed felt that in industries where there are not uniform standards the only viable standard was a minimum one. Instructors in some institutions, however, were bitterly opposed to minimum competencies. They claimed, on the basis of past experience, that they have too often seen the minimum become the standard or the average. They maintained that students are very often unwilling to go beyond the minimum level of certification. They therefore strongly supported a ladder of competencies, where students could move from one level to another as their skills increased.

Some of those favoring competency testing in principle were skeptical that appropriate tests could be devised. There was general agreement that "paper and pencil" tests would not suffice in most cases, and that various types of "hands on" tests would have to be developed in place of or to supplement them. One high school administrator suggested a two-tiered test. The first test would be a written test to determine whether or not the student had mastered basic concepts in the field and had acquired basic knowledge about equipment and occupational safety. A teacher in an automotive program suggested that the first test might examine the student's understanding of basic shop safety, major types of engines, how the various systems of the automobile work, and how they work together. The second would be a practical one where the student would be presented with specific tasks to complete, such as diagnosing an automotive problem or operating computer equipment.

Interestingly, some institutions have been experimenting with proficiency testing. Two of the districts visited award certificates of proficiency and a third was considering them. In one place, certificates of completion are awarded to students passing the required courses and a certificate of proficiency to those students who demonstrate entry-level skills in the occupation. All of the persons using or considering using certificates were quite positive about them. They felt that they gave students something to work for and a feeling of accomplishment when achieved. They also felt they are useful for employers because they provide concrete information on the training the students were exposed to. Finally, they felt that the certificates make teachers more accountable for their performances. When a teacher signs a certificate, he or she is certifying that the student actually has certain skills. Perhaps, then, locally-developed standards might be acceptable for at least some areas where statewide standards are rejected.

In sum, vocational educators and administrators at the local level believed in the idea of employability as an important outcome. Community college people, more satisfied with placement as a criterion for evaluating programs than secondary district people, were less likely to consider it necessary to separate employability from employment outcomes. Of those who would like to measure employability separately, most were only willing to accept competency tests in fields for which industry standards exist. The idea of statewide standards in other areas was greeted with apprehension. The enthusiasm with local proficiency certificates where used, on the other hand, suggests that locally-developed standards might be more readily accepted.

4. *Access Outcomes*

The idea that vocational educators have an obligation to try to increase the access of disadvantaged, handicapped, and limited English proficiency students to vocational education programs and of both men and women to programs nontraditional for their sexes was universally accepted and generated little discussion or controversy. All agreed that access should be monitored. Unfortunately, at the time of the site visits, we had not yet settled upon the "access ratio" as the measure of access, nor had we developed its use in the allocation of funds. Consequently, we could not discuss these aspects of the proposed evaluation/funding system during the site visits.

CONCLUSIONS

The site visits led us to a number of important conclusions that significantly affected the final design of our recommended approach to performance-based evaluation. First, from the responses of many of those interivewed, it became clear that a complex model of program evaluation is not workable, *as long as it must depend on local administrators to collect, maintain, and report the necessary data.* Local administrators are already overburdened, and in most cases they have neither the financial resources nor the expertise to collect detailed data, especially follow-up data, required for a model systematically comparing the effectiveness of vocational education programs. When such data are collected by an independent collector — such as a professional contractor charged with data collection for the longitudinal studies conducted by the U.S. Department of Education — they can be employed in a model of the kind suggested in the Appendix to Chapter Four. It is important, therefore, that the design of longitudinal studies consider carefully data requirements for program evaluation.

Second, local staff must be given considerable discretion in the development of the standards and competencies required to certify that a student completing a particular vocational education program is sufficiently prepared for entry level employment in a field related to training. This discretion is necessary not only because of the considerable variation in local economic conditions that exists among providers, but also because it is the most likely to secure the cooperation of local officials, many of whom, simply on the basis of strong philosophical beliefs in local autonomy, will resist any effort to impose standards "from the top down." Involvement by business, labor, and other interested parties in the defintion of stnadards and competencies will help to ensure that they are appropriate to local economic conditions.

Third, the hallmark of any ongoing evaluation and reporting process required of all providers of vocational education must be simplicity. The enormous detail required by VEDS for data collection and reporting, as well as the ambiguity and confusion that surrounded the requirements for allocating and spending funds under the 1976 Amendments, have generated much needless work for local administrators whose time would be far better spent on other tasks. The mindlessness of some of these requirements have also produced among many teachers and administrators a general disregard for the wisdom of federal and state policy in vocational education.

The system for performance-based evaluation proposed in Chapter Five and the changes recommended in Chapter Five for federal data collection have tried to incorporate the advice offered during the site visits. Our suggestions may not achieve the degree of simplicity and elegance that we would all like, but they do represent a significant improvement over past policy.

CHAPTER SEVEN

FUTURE DIRECTIONS FOR FEDERAL POLICY: A CONCLUDING NOTE

Aside from stimulating large program growth, federal vocational education policy has enjoyed few successes over the last 25 years. Throughout this period, vocational education has been under constant attack from one front or another for failing to deliver quality education and for failing to make it accessible to all. The latest salvo comes from the Committee for Economic Development, whose trustees represent 225 of the nation's leading corporations and institutions of higher learning:

> Many "vocational education" programs are almost worthless. They are a cruel hoax on young people looking to acquire marketable skills. So many different and, in many cases, unproductive programs in our public schools have been called "vocational education" that most existing programs need to be disbanded and reshaped. Vocational education should ensure that students are learning skills that relate to the real needs of the job market.[1]

Despite such criticisms, vocational education has remained remarkably popular with Congress. In the summer of 1985, amidst growing pressures from all sides to decrease the federal deficit, Congress voted an increase of $100 million in federal funds for vocational education, one of the few domestic programs to enjoy increased support.[2] Why does Congress continue to spend federal dollars for vocational education in spite of the overwhelming evidence of the past ineffectiveness of federal policies?

One explanation, of course, is the power of the nation's education lobbies. The recent $100 million increase for vocational education had the support not only of the American Vocational Association but also the National Education Association and the American Association of Community and Junior Colleges. But the strength of special interests is too pat an answer, one that not only overestimates the power of the lobbies but also fails to appreciate the complex appeal of vocational education.

Congress continues to support vocational education, we suspect, because there is a strong consensus that the basic aim of vocational education — to prepare young people for the world of work — is essential to the well-being of the nation. Few would argue that this aim should be the only concern of schooling, but few would deny that it must be one of schools' major objectives if young people are to lead satisfying, independent adult lives. To oppose vocational education, therefore, seems in a very primordial way to deny young people the means to survive and prosper.

To make vocational education work consistently, however, has proven to be exceedingly difficult. No one will quarrel with the Committee for Economic Development's statement that "vocational education should ensure that students are learning skills that relate to the real needs of the job market." Does anyone seriously believe that most vocational educators have not been trying to do precisely that? The problem is that this is very hard to do well for all students, in all fields, at all times. What exactly are the "real needs" of the job market? At what point in time?

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[1] Excerpts in *Education Week*, Vol. V, No. 2, September 11, 1985, p. 17.

[2] *Update*, Vol 8, No. 1, August 1985, p. 1.

According to whom? What job market — local, regional, national, international? Precisely how should vocational education "ensure" that students are learning appropriate skills? Until such questions can be answered more clearly, vocational education will continue to muddle along an inconsistent path of success and failure.

In this monograph, we have tried to suggest some ways that federal policy might be recast to help to answer such questions. First and foremost, we have argued that future policy needs to emphasize performance over process. Prescriptive federal policy that is concerned mainly with *how* services are delivered is not only at odds with the nation's decentralized approach to school governance but also tends to lose sight of *what* services should accomplish and *why*. Future federal policy should strive to be more permissive, encouraging states and local schools to define *specific, measurable standards of performance* expected from vocational education programs and rewarding them for producing students who meet these standards. These standards should be tailored to local circumstances and reflect balanced input from educators, business, and labor.

Second, we have also urged that the objectives, procedures, and scope of state and national data collection concentrate on issues of effectiveness rather than compliance. For policy to become performance-oriented, we need to know what works in vocational education, what does not work, and why. VEDS, which understandably was designed to evaluate compliance with the many prescriptive features of P.L. 94-482, cost millions of dollars and collected enormous amounts of data — none of which can tell us anything about what vocational education programs are effective, what the characteristics are of effective programs, what types of students have been most successful in vocational education, what types of delivery systems are effective for different kinds of students, and a host of other important questions on the performance of vocational education. In the absence of such information, it is virtually impossible to develop sound federal policy.

Third, future policy needs to link concerns about access to performance. To date, federal policy has been satisfied with assurances that groups historically under represented in certain vocational education programs are now being adequately served, as evidenced by their *participation* in these programs. Participation, however, provides no guarantee that these students are in fact acquiring the skills they need to perform effectively in the labor market. Only program *completion,* which certifies that students have acquired the basic and job-specific skills necessary to perform an entry level job in a field related to training, indicates that meaningful access has been achieved.

Finally, future policy needs to tie performance and access directly to funding in a clear, simple fashion. From past experience with P.L. 94-482, there can be no doubt that complicated procedures for allocating funds are unworkable. The Carl Perkins Act eliminated the funds distribution requirements but unfortunately provided nothing in their place. Although there is as yet no information on what federal funds are buying under the Carl Perkins Act, it is likely that Congress will find once again that there is little relationship between funding and the realization of federal policy objectives.

Is it feasible to reshape federal vocational education policy to encourage the definition and adoption of performance standards, to collect data suitable for analyzing program effectiveness, to define access in terms of performance, and to base funding on program accomplishments? In some respects, the climate at the federal and state levels has never been better for pursuing such changes. The renewed national concern about the quality of public education has focused legislative attention on program standards and on securing other reforms in the daily operations of elementary, secondary, and postsecondary institutions. This renewed concern for improving curriculum and the quality of teaching provides vocational education with an opportunity but also a warning.

On the one hand, the new attention on curriculum and teaching provides an opportunity for a critical review of vocational education programs and their role in the larger secondary and postsecondary curriculum. It is an opportunity to state clearly what vocational education is seeking to accomplish and to develop fair, useful criteria for evaluating its effects. On the other hand, the latest pursuit of excellence in education is also a warning that unless vocational education can demonstrate both its ability to strengthen basic academics as well as its contribution to the acquisition of life-long skills that will outlast an entry level job, vocational education will find itself increasingly squeezed out of the mainstream secondary and postsecondary curriculum.

Federal policy can help improve vocational education and ensure that it benefits from the nationwide push for educational reform, but to do so, it must abandon the prescriptive procedures of the past and focus on defining desirable program outcomes and rewarding programs that achieve the desired results. In this fashion, the twin federal aims to improve programs and to improve access may finally be realized.